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Here you go David.

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MONITORED NATURAL ATTENUATION PILOT PROGRAM WORK PLAN

**PRISTINE, INC. SITE
READING, OHIO**

NOVEMBER 2010

REF. NO. 003250 (75)

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1.0 INTRODUCTION

1.1 PURPOSE

The lower aquifer pump and treat system at the Pristine, Inc Superfund Site ("Site") in Reading, Ohio has operated since 1997/1998. Over that time, the system has successfully reduced concentrations of the volatile organic compounds ("VOCs") in groundwater by around 95 percent. Despite these substantial reductions, certain of the remaining compounds in the lower aquifer are present above the Site Performance Goals and Maximum Contaminant Levels ("MCLs"), and an alternative remedial approach may be appropriate. While the groundwater extraction and treatment system has worked well to date, its future operation is threatened by non-Pristine plumes in the area, and the system's rate of reduction has decreased and reached asymptotic levels. The Pristine Trust is therefore proposing a partial switch to a Monitored Natural Attenuation ("MNA") approach.

As a first step in evaluating a possible MNA remedy, this report presents the Monitored Natural Attenuation Pilot Program Work Plan ("Work Plan") for the assessment of the effectiveness of natural attenuation of VOCs in lower aquifer groundwater downgradient of the Pristine Site. This report was prepared by Conestoga-Rovers & Associates (CRA) on behalf of the Pristine Trust.

1.2 GENERAL BACKGROUND

The remedy selected for the Pristine Site included various components for addressing soil and groundwater conditions, which was implemented under a Consent Decree¹ with United States Environmental Protection Agency (U.S. EPA) beginning in the early 1990s. The remedy includes, in part, a groundwater extraction and treatment system for lower aquifer groundwater using one on-Site and four off-Site extraction wells. Since 1998, the concentrations of VOCs in both on-Site and off-Site lower aquifer groundwater have been substantially reduced, often to non-detect levels, as a result of the pumping. Monitoring data demonstrate that the concentration reductions were most pronounced during the first few years of pumping, and VOC concentrations at off-Site wells have remained relatively steady since around 2002. However, monitoring data have also identified and confirmed the nearby presence of VOCs in lower aquifer groundwater from other sources, which threatens the operation of the Pristine lower aquifer groundwater extraction and treatment system. As a result, the overall groundwater pumping rate has been reduced in stages, with U.S. EPA approval, to mitigate the

¹ United States of America vs. American Greetings Corporation et al. – Civil Action C-89-837, November 23, 1990.

potential for VOCs from other sources to be drawn into the Pristine extraction well system. Nonetheless, the potential risks to human health and the environment posed by Site conditions prior to the Pristine remedial efforts have been minimized and/or eliminated. Notably for this phase of the remediation, monitoring data confirm that groundwater conditions are conducive to biodegradation of VOCs.

In consideration of the above, the Pristine Facility Trust has proposed to U.S. EPA and to Ohio EPA the cessation of pumping the off-Site wells and implementation of a MNA approach for VOCs for off-Site lower aquifer groundwater. The next step in this process is the submission of this MNA Pilot Program Work Plan for implementation of a pilot program to assess the natural attenuation of VOCs in lower aquifer groundwater, as explained in further detail herein.

1.3 SITE BACKGROUND

Site Location and Setting

The 3-acre Site is located in Reading, Ohio, a highly industrialized area north of Cincinnati (Figure 1.1). The Site occupies part of, and is accessed via, the Cincinnati Drum Service Inc. (CDS) property². The Site area and surrounding land use is presented on Figure 1.2.

The property immediately to the south of the Site and CDS is occupied by Rohm and Haas Company (a wholly owned subsidiary of The Dow Chemical Company, herein referred to as "Rohm and Haas"), which manufactures synthetic stabilizers and plasticizers. The area south of Rohm and Haas includes municipal recreational facilities, a cemetery, and residential land use.

The eastern limit of the Site is bordered by a railroad spur line operated by Rohm and Haas and railroad lines operated by Southwest Ohio Regional Transit Authority. A grain elevator is located east of the railroad. Immediately north of the grain elevator and northeast of the Site is a vacant parcel.

The land to the north of the Site and CDS was formerly owned by the City of Reading and is currently occupied by a Metropolitan Sewer District (MSD) storage and treatment facility, for combined sewer flow. Historically, this area was used for the disposal of fly ash from a municipal waste incinerator, and was also the location of several municipal

² The name of Cincinnati Drum Service, Inc. has been changed to Long Holdings Group, Inc. effective July 2010.

water supply wells. Additional supply wells were located adjacent to this area to the west of Mill Creek, and further to the south, in Koenig Park. The City of Reading permanently abandoned its wells and connected to the City of Cincinnati water supply system in 1994.

The area immediately to the west of CDS and Mill Creek is currently occupied by an asphalt production facility owned by Barrett Paving Materials Inc. (formerly L.P. Cavett Co.). Even earlier, this area was formerly occupied by a rendering facility owned by Darling and Company. A large number of other small industrial facilities are present in the areas surrounding the Site. The General Electric (GE) Evendale aircraft engine facility is located along the I-75 corridor, to the west and northwest of the Pristine Site.

Pristine, Inc. Operations

Until approximately 1970, the entire CDS property was owned by International Minerals Corporation (IMC) who previously used the equipment on the Site for the manufacture of sulfuric acid. Pristine, Inc. conducted liquid waste disposal operations at the Site beginning in 1974, and obtained a permit to operate a liquid waste incinerator in the spring of 1977. Between the spring of 1977 and September 1981, Pristine, Inc. accepted loads of bulk and drummed waste at the Site. Wastes were batched and incinerated in the on-Site incinerator. Neutralization of some liquid wastes was also conducted at the Site. Pristine operations were shut down in September 1981 under the terms of a Consent Agreement.

NPL Listing, RI/FS, and ROD

The Pristine, Inc. Site was placed on the National Priorities List (NPL) in December 1982. In May 1985, U.S. EPA initiated a Remedial Investigation/Feasibility Study (RI/FS) under CERCLA. The RI/FS was conducted by U.S. EPA contractors and was concluded in late 1987. The Record of Decision (ROD) for the Site was signed on December 31, 1987. The ROD included:

- Excavation and on-Site consolidation of 1,725 cubic yards of soil and sediment;
- In-situ vitrification of on-Site soils to an average depth of 10 feet;
- Installation of a french drain for shallow groundwater collection;
- Extraction and on-Site treatment of groundwater from the lower outwash lens/lower aquifer;
- Demolition, decontamination and off-Site removal and disposal of all on-Site structures;

- Access and deed restrictions; and
- Groundwater monitoring.

On March 30, 1990, a ROD Amendment was executed which changed treatment of on-Site soils from in-situ vitrification to on-Site thermal incineration and soil vapor extraction³.

The RI/FS did not delineate the extent of lower aquifer groundwater contamination beyond the Site boundary, and the selected remedy included one on-Site extraction well. The Pristine Trust subsequently conducted off-Site lower aquifer investigations which lead to the design and construction of the off-Site extraction well system. Also, during the operation and monitoring phase for the pump and treat system, the existence of regional groundwater contamination from sources other than the Pristine Site was confirmed as explained in Section 2.3.3.

Remedial Action Implementation and Risk Reduction

All remedial action construction activities at the Site have been completed successfully, including demolition and decontamination of the on-Site structures, thermal treatment of approximately 13,000 tons of impacted soil and sediment, construction and operation of an in-situ soil vapor extraction (ISVE) system, construction of a low permeability cap on the Site, and construction and operation of the groundwater extraction and treatment system. The remedial components for on-Site soil and sediment are complete with the exception of the final testing related to the operation of the ISVE system, and the final risk assessment⁴. Deed restrictions and an environmental covenant which impose limitations for use of the Site have been implemented to prevent potential exposure to on-Site soil/sediment and groundwater. As a result, the potential risks to human health associated with on-Site environmental media have been addressed as required in the ROD.

Operation of the groundwater extraction and treatment system has resulted in significant reductions of VOC concentrations in lower aquifer groundwater. Following shutdown of the City of Reading supply wells in 1994, lower aquifer groundwater in the Site vicinity has not been, and is not expected to be used for water supply purposes. The

³ During remedy implementation two Explanation of Significant Differences (ESD) documents were issued related to: the use of thermal desorption and revised target soil concentrations for Polycyclic Aromatic Hydrocarbons (PAHs); and to waive the requirement of applying the Ohio EPA anti-degradation rule (OAC 3745-1-05) to the discharge limitations for the treatment plant water discharged to Mill Creek.

⁴ The preliminary risk assessment based on industrial/commercial land use will be finalized using the results of the post-ISVE soil testing.

Pristine Institutional Controls Action Plan (www.epa.gov) has been implemented to assess potential groundwater use in the vicinity of the Site. As a result, off-Site groundwater quality has been significantly improved and potential human exposure to off-Site lower aquifer groundwater has been addressed.

2.0 LOWER AQUIFER GROUNDWATER EXTRACTION AND MONITORING

2.1 GENERAL

The Pristine lower aquifer groundwater plume has been delineated by the Pristine Trust as being beneath and extending beyond the Site in a south and south westerly direction. This plume has been characterized by the presence and predominance of 1,2-DCA in terms of concentration and frequency of detection, and is sometimes referred to as the 1,2-DCA plume, which can be subdivided to include on-Site and off-Site areas.

The lower aquifer groundwater extraction system includes five extraction wells identified as EW1 through EW5, as shown on Figure 2.1. Groundwater from the extraction wells is conveyed by underground piping to the treatment system located on the Pristine Site.

The original system design included two separate treatment trains, identified as the 150 gallons per minute (gpm) system and the 300 gpm system, according to the upper design flow rates for each. The 150 gpm system was originally used to treat water from EW1, EW2, and EW3, which initially contained higher VOC concentrations, and began operation in 1997. The 300 gpm system was used to treat water from EW4 and EW5, which contained lower VOC concentrations, and began operation in 1998. The combined treated groundwater is discharged to Mill Creek and is subject to an authorization issued by Ohio EPA.

The pumping rate and configuration of the extraction and treatment system has been modified and optimized since system startup in response to changes in groundwater conditions and non-Site-related influences. The system has operated essentially continuously since 1997/1998 except for scheduled maintenance shutdowns. The operation of the lower aquifer groundwater extraction system is discussed further in Section 2.2.

Groundwater monitoring has been conducted both prior to and during the operation of the lower aquifer groundwater pumping system. This includes collection of groundwater samples from extraction wells and monitoring wells for laboratory analysis, measurement of field testing parameters, and measuring groundwater levels. This has produced an extensive groundwater monitoring database, discussed further in Section 2.3.

2.2 LOWER AQUIFER GROUNDWATER EXTRACTION

The total amount of groundwater extracted and treated from the lower aquifer from system startup through June 2010 is approximately 1.6 billion gallons, averaging approximately 350 to 400 gpm initially and approximately 140 gpm since mid-2006.

As indicated above, there have been pumping rate reductions necessitated by the presence of VOCs in groundwater from other sources, not related to the Pristine Site. These conditions were deemed a threat to the operation of the Pristine groundwater pump and treat remedy, and were the subject of three Force Majeure Notifications dated April 2, 2002, March 16, 2005, and November 5, 2008.

The extraction well pumping rates were first reduced in March 2002 because of the presence of VOCs from other sources in groundwater located off Site to the west and southwest of the Pristine Site extraction well system. Prior to March 2002 the combined pumping rate for the lower aquifer extraction wells was typically between 350 and 400 gpm. After March 2002 the combined pumping rate was typically between 250 and 350 gpm.

In March 2006, a second reduction in the groundwater pumping rates was initiated in an attempt to reduce the potential effects of non-Site-related groundwater contamination to the southwest of the Site. In particular, this was prompted by the presence of VOCs from other sources in groundwater detected at OS-MW1D, a monitoring location established by General Electric (GE) in the vicinity of the southeast portion of the GE facility, and to the west of the Pristine Site extraction wells. The combined pumping rate was reduced to approximately 150 gpm or less. The reduction in pumping rates included the cessation of pumping at extraction wells EW2 and EW4.

In November 2008, the groundwater pumping system was reconfigured in an attempt to further reduce the potential for capture of non-Site-related impacted groundwater. Extraction well EW3 was shut off and the pumping rate at EW5 was increased. The reconfiguration included pumping from extraction wells EW1 and EW5 at a maximum combined pumping rate of 140 gpm.

The lower aquifer remediation has been subject to ongoing evaluation and optimization. The pumping rate reductions were initially intended to be temporary, but a return to the previous higher pumping rates is not foreseeable. In addition to the lower aquifer pumping rate modifications discussed above, optimization efforts have included:

- Increased groundwater monitoring frequency at selected monitoring wells.

- Modifications to the treatment system configuration and operation to accommodate changes in groundwater chemistry and flow rate.
- Changes to the treatment system monitoring parameters and frequency.
- Installation of additional wells in the on-Site lower outwash lens. Two wells (GW108, GW109) were installed at the south end of the Site and pumping from GW108 was initiated to augment the VOC removal from the on-Site lower aquifer extraction well (EW1).

2.3 LOWER AQUIFER GROUNDWATER MONITORING RESULTS

The lower aquifer groundwater monitoring program includes measuring groundwater elevation levels at monitoring wells and piezometers and the collection and laboratory analysis of groundwater samples from 39 monitoring wells and five extraction wells. A total of 31 rounds of groundwater sampling have been conducted since 1992. Well locations are shown on Figure 2.1.

2.3.1 WATER LEVEL MONITORING DATA

Table 2.1 presents the lower aquifer water level data for monitoring wells and piezometers in the Pristine monitoring network. Additional water level monitoring data was provided to CRA for the Rohm and Haas facility (by Parsons) and for the GE facility and vicinity (by O'Brien & Gere). The regional groundwater flow direction is southerly along the Mill Creek Valley, and is influenced near the Pristine Site by the presence of the eastern edge of the buried bedrock valley.

The potentiometric surface contours for the lower aquifer, based on water level measurements recorded at on-Site and off-Site monitoring wells (including monitoring wells installed and maintained by others) on various dates (July 8, 2002, July 17 to 18, 2006, July 6, 2009, and February 5, 2010) are presented on Figures 2.2 through 2.5.

As shown on the contour map for July 8, 2002 (Figure 2.2), the lower aquifer groundwater potentiometric surface is influenced by the extraction system, which induces groundwater flow from areas to the west and south of the extraction wells. This effect appears to be most pronounced near EW3, EW4, and EW5. The apparent effect on the potentiometric surface at on-Site extraction well EW1, is relatively small. The combined pumping rate at that time was 305 gpm.

Following the second pumping rate reduction in March 2006, as shown on the contour map for July 17 to 18, 2006 (Figure 2.3), the hydraulic gradient in the area south of EW5 was relatively flat, apparently due to the reduced pumping rate related to the cessation of pumping at EW2 and EW4. However, the pumping at that time (totaling 143 gpm) continued to induce flow toward the extraction system from the area to the west.

Following the pumping rate reconfiguration in November 2008, as shown on the contour map for July 6, 2009 (Figure 2.4), the hydraulic gradient in the area south of EW5 remains relatively flat, and induced flow towards the extraction system from the west remains apparent. At that time, EW2, EW3, and EW4 were turned off and the total pumping rate was 122 gpm. Similar conditions are apparent on the contour map for February 5, 2010 (Figure 2.5), when the total pumping rate was 119 gpm.

2.3.2 SAMPLING AND ANALYSIS PROGRAM

As noted earlier, 31 rounds of groundwater sampling have been conducted since 1992. Rounds 1 (1992) through 7 (1996) were conducted as part of the lower aquifer groundwater investigation (during the pre-design stage). Rounds 8 (1997) through 31 (March 2010) were conducted as a part of the monitoring program for the groundwater remediation system. The program typically involves annual sampling of all existing monitoring wells, although additional sampling of selected wells on a more frequent basis has also been conducted. Specifically, this includes supplemental quarterly sampling (Rounds 10 through 13) conducted in 1999 at the request of U.S. EPA, and eight additional monitoring events (Rounds 21, 22, 24, 25, 27, 28, 30, and 31) conducted from November 2006 to March 2010 related to the presence of non-Pristine-related VOCs in off-Site groundwater (see Section 2.3.3). (A summary of the monitoring well sampling and analysis program is included in Table 2.2.) In addition, samples have been collected for chemical analysis from the five lower aquifer extraction wells, typically on an annual basis, since 1997.

In conjunction with the monitoring well sampling program discussed above, a program for the evaluation of natural attenuation parameters in the lower aquifer was initiated in 2001, as discussed further in Section 3.3.

The analytical data for VOCs, dissolved gases, and ethanol for monitoring well and extraction well samples collected through April 2010 are provided in electronic format in Appendix A.

2.3.3 VOC DATA ASSESSMENT AND PERCENT REDUCTION

To date, the Pristine lower aquifer groundwater plume has been characterized by the predominance of 1,2-DCA in terms of concentration and frequency of detection, in an area extending from the southern portion of the Site, toward the south including off-Site monitoring wells MW82 through MW91, and MW94/MW95 (referred to as the 1,2-DCA plume area). In contrast, other areas of non-Pristine-related VOCs in off-Site groundwater exist, but they do not contain 1,2-DCA, as discussed below.

The most recent reported comprehensive groundwater monitoring well sampling event was Round 29, conducted in July 2009⁵. During Round 29, groundwater samples were collected from 39 monitoring wells and analyzed for VOCs⁶. Table 2.3 provides the VOC list and a summary of the analytical results (i.e., frequency of detection and the minimum and maximum detected concentrations). Table 2.3 also provides assessment values for comparative purposes, i.e., Performance Goals from the Remedial Action Plan, and Maximum Contaminant Levels (MCLs) for drinking water.

Four of the more frequently detected VOCs listed in Table 2.3 are 1,2-DCA, cis-1,2-DCE, TCE, and vinyl chloride, each of which was detected at concentrations above assessment values (Performance Goals and MCLs). The analytical results for these compounds for monitoring well samples (Round 1 through Round 31) and extraction well samples (through April 2010) are set forth on Figure 2.6. There, it can be seen that the concentrations of individual VOCs have decreased over time as a result of the Pristine groundwater extraction system that was initiated in 1997/1998.

The extent of the reductions in VOC concentrations can be seen in Table 2.4, which provides a summary of the 1,2-DCA and total VOC concentrations and percent reduction in concentrations for monitoring well results (Round 29), and extraction wells (April 2009) within the Pristine plume. This table shows the 1,2-DCA concentration reductions at individual well locations are all greater than 94 percent with two minor exceptions⁷. The reductions in total VOC concentrations are generally greater than 95 percent with limited exceptions. Notably, some individual well locations, including MW87, MW90, and MW91 exhibit lesser reductions since they are influenced by other sources of VOCs in groundwater, not related to the Pristine Site.

⁵ Round 32, completed in July 2010 will be reported at a later date following data validation.

⁶ The VOCs that were analyzed include Site-specific VOCs, other VOCs requested by U.S. EPA, and VOCs of interest with respect to the natural attenuation evaluation.

⁷ At MW87 the 1,2-DCA concentration in Round 29 was 13 µg/L as compared to the previous (pre-2009) maximum of 4.8 µg/L. At MW94 the 1,2-DCA concentration in Round 29 was 0.79 µg/L (estimated) as compared to the previous maximum of 6.3 µg/L, representing a decrease of 87 percent.

Figure 2.7 provides information regarding the presence of VOCs in groundwater and serves two purposes. First, it illustrates a comparison of the 2009 analytical results for monitoring wells (Round 29) and extraction wells (April 2009) relative to MCLs⁸. Second, the figure illustrates by different colored shadings, three separate plume areas as presented by USGS (USGS, 2004 – Figure 17):

- The lower aquifer 1,2-DCA plume based on Pristine Site studies
- The non-Pristine Southwest TCE plume
- The non-Pristine Upper Aquifer plume at the GE facility

Although not depicted on the USGS map, other areas of detected VOCs (e.g., TCE and associated degradation products, but excluding 1,2-DCA) in groundwater unrelated to the Pristine Site are known to exist, including:

- Lower aquifer monitoring wells MW87, MW92, and other nearby GE off-Site monitoring wells located west of the 1,2-DCA plume
- Lower aquifer monitoring wells located immediately north of the Pristine Site
- Upper aquifer monitoring well MW107

As shown on Figure 2.7, several VOCs were detected at concentrations above MCLs in on-Site wells (including MW68, MW70, and EW1), and the VOC detected at the highest concentration was 1,2-DCA, at 1,400 micrograms per litre ($\mu\text{g}/\text{L}$) at MW68. At wells located south of the Site but north of Columbia Avenue (i.e., MW83 through MW95, and EW2 through EW5) the only VOC detected at concentrations above MCLs was 1,2-DCA. At these wells the detected 1,2-DCA concentrations were typically below $30 \mu\text{g}/\text{L}$, with a maximum of $120 \mu\text{g}/\text{L}$. At MW92 located west of the 1,2-DCA plume area, vinyl chloride was detected above the MCL. At monitoring well locations south of Columbia Avenue, within the non-Pristine Southwest TCE plume, the VOCs detected at concentrations above the MCL in Round 29 include TCE, cis-1,2-DCE, and vinyl chloride (but not 1,2-DCA).

As a consequence of the significant reductions in VOC concentrations noted above, the VOC mass removal from the extraction system has also decreased over time. This is illustrated in Table 2.5, which includes the VOC removal based on the treatment system influent sampling results. This table shows that the annual VOC removal was more

⁸ Figure 2.7 was developed based on comparison to MCLs in order to illustrate the analytical results relative to promulgated drinking water standards. Some of the VOC concentrations also exceed performance goals as noted previously.

than 4,000 pounds (lbs) in 1998 and 1999, decreasing to 157 lbs in 2005, and 28 lbs in 2009.

The operation of the pumping and treatment system includes many fixed elements which are not sensitive to reductions in VOC influent concentrations. Thus, the environmental footprint of the system in terms of relevant indicators i) consumption of materials and energy, and ii) direct and indirect greenhouse gas emissions, remains relatively constant, having been reduced only somewhat by system optimization and reduced pumping rates. Similarly, the unit cost for VOC removal from groundwater has substantially increased, since the fixed costs associated with groundwater pumping and treatment are not substantially changed as the VOC concentrations and mass removal decrease. Therefore, an MNA approach could reduce the environmental footprint of the groundwater extraction and treatment system.

2.4 SUMMARY

The Pristine groundwater extraction and treatment system has been subject to ongoing optimization, and as a result has successfully achieved very high percentage reductions of VOC concentrations and mass in lower aquifer groundwater, both on-Site and in the off-Site area to the south. However, the rate of these reductions has decreased and reached an asymptotic level, consistent with the general limitations of pump and treat technology. 1,2-DCA is the only VOC detected at concentrations above MCLs based on 2009 monitoring results for the main portion of the Pristine plume.

There are known areas of VOCs in lower aquifer groundwater that are not fully delineated, and not related to the Pristine Site, which threaten the operation of the Pristine pumping and treatment system. As a result, pumping rates have been decreased in an effort to avoid drawing such non-Pristine-related VOCs into the Pristine groundwater extraction wells.

Given the limitation of pump and treat technology, together with the practical inability to return to higher pumping rates, it is appropriate and timely to consider alternate remediation methods, such as MNA. The adoption of MNA will have the added benefit of reducing the environmental footprint of the Site remediation.

3.0 PRELIMINARY NATURAL ATTENUATION ASSESSMENT

3.1 OVERVIEW OF NATURAL ATTENUATION MECHANISMS

In general, VOCs in groundwater are subject to various attenuation mechanisms, which can be categorized as either non-destructive or destructive. Non-destructive processes result in reductions in dissolved concentrations of compounds over distance and time, and include: dispersion and diffusion; dilution; sorption; and volatilization. Destructive processes destroy the chemical's structure, resulting in reductions in chemical mass. Destructive attenuation processes include biodegradation and abiotic transformation. The following section presents an overview of the relevant natural attenuation processes.

3.1.1 DISPERSION/DIFFUSION

In groundwater, chemical compounds are transported at a given average linear velocity, by advective transport. However, groundwater travels at rates greater than, and less than, the average linear velocity due to the tortuous path that the water must take through a porous medium. As a result, because groundwater does not all move at the same velocity, mixing will occur along the flow path. This mixing is called mechanical dispersion. Further, a chemical compound in water also will move from an area of high concentration toward an area of lower concentration independent of advective groundwater flow, by molecular diffusion. The effects of molecular diffusion and mechanical dispersion are combined into a term frequently called hydrodynamic dispersion, which essentially describes the spreading and, effectively, the reduction in concentration of a compound in groundwater.

3.1.2 DILUTION

Dilution is the process of mixing of groundwater with a higher concentration of a constituent with water with a lower concentration of that constituent thereby reducing the concentration of the mixture relative to the original water. The main source of dilution of groundwater is mixing with infiltrating precipitation or mixing with surface water.

3.1.3 SORPTION

The term sorption is used to describe the overall effect of various processes that result in the binding of a compound to a solid particle. Processes that result in sorption of organic compounds include:

- Adsorption, whereby a compound physically 'clings' to a solid particle
- Chemisorption, where a compound is incorporated onto a sediment, soil, or rock surface via a chemical reaction
- Absorption in which a compound diffuses into the soil, sediment, or rock matrix
- Cation exchange in which positively-charged particles (cations) are attracted to a negatively-charged mineral surface and are held there by electrostatic forces (the converse may also occur - i.e., negatively charged particles (anions) may be attracted and bound to positively-charged surfaces by anion exchange)

3.1.4 VOLATILIZATION

Volatilization typically applies to organic compounds in the unsaturated (vadose) zone and/or unconfined aquifers. Volatilization is a process by which compounds are transferred from the dissolved phase to the vapor phase. This process is controlled by the solubility, molecular weight, and vapor pressure of the compound, as well as the nature of the media through which the vapor passes. Volatilization is generally not very significant in decreasing chemical concentrations from the dissolved phase in saturated units relative to other processes, although it may be more important in the shallow portion of an unconfined aquifer.

3.1.5 BIODEGRADATION

Microbial biodegradation involves the utilization of carbon from an organic compound (i.e., the substrate) for microbial cell growth. As part of the biodegradation process, electrons are transferred from the organic substrate (i.e., electron donor) to an available electron acceptor. This transfer of electrons is defined as an oxidation-reduction (redox) reaction. Energy derived from this transfer of electrons is utilized by soil microorganisms for cellular respiration.

Microbial biodegradation will only occur if suitable quantities of the organic substrate and electron acceptors are available for the necessary redox reactions. Certain forms of organic matter, such as fuel hydrocarbons, are readily utilized as substrates during

microbial biodegradation and hence in an environment with high hydrocarbons, degradation can be very rapid (Carey et al., 1999; Wiedemeier et al., 1996; Wiedemeier et al., 1999).

Typical inorganic electron acceptors available in groundwater, in the order of those that release the greatest energy to those that release the least energy, are: dissolved oxygen, nitrate, manganese oxide and iron oxide coatings on soil, dissolved sulfate, and carbon dioxide. In some cases, reductive dechlorination will involve the use of VOCs as alternative electron acceptors.

The sequential use of these electron acceptors occurs as groundwater redox potential becomes increasingly reducing during the biodegradation of organic compounds. For example, when groundwater becomes depleted of dissolved oxygen and nitrate, the conditions are conducive to the reduction and subsequent dissolution of iron and manganese oxides. Ferric iron typically exists as an oxide coating on soil and is relatively insoluble in groundwater. Ferric iron is used as an electron acceptor during microbial biodegradation where it is reduced to ferrous iron, which is far more soluble (Lyngkilde and Christensen, 1992).

The combination of principles referred to above results in the situation in which the long-term migration of organic contaminants in groundwater produces a sequence of geochemical (or redox) zones of increasing redox potential downgradient from a source area with an abundant carbon source (Lyngkilde and Christensen, 1992). The extent of individual redox zones is site-specific, and depends on substrate migration pathways, kinetics of redox processes, groundwater flow velocities, and the availability of various electron acceptors in groundwater.

3.2 MONITORED NATURAL ATTENUATION PROTOCOLS

U.S. EPA and the U.S. Air Force have conducted extensive research to assess the effectiveness of natural attenuation processes in attenuating VOCs in groundwater, and together they have developed technical protocols for implementing natural attenuation studies for sites contaminated with petroleum hydrocarbons (Wiedemeier et al., 1995) and sites contaminated with chlorinated solvents (Wiedemeier et al., 1996). Both protocols state that support for remediation by natural attenuation must be scientifically demonstrated using a "weight-of-evidence" approach that natural attenuation of site-related contaminants is occurring at rates sufficient to be protective of human health and the environment. Relying on multiple lines of evidence increases the likelihood of successfully identifying and implementing natural attenuation as an alternative remedy

at the Site (Wiedemeier et al., 1995; 1996). The data can show the occurrence of natural attenuation in the following ways:

1. Decreasing contaminant concentrations along the flow path downgradient from the source of contamination
2. Decreasing contaminant concentrations and increasing concentrations of by-products at individual locations
3. Geochemical conditions that support the occurrence of biodegradation

Each of the above indicators can provide evidence that supports the occurrence of natural attenuation. The line of evidence approach is also presented in U.S. EPA guidance discussed in Section 5.1.

3.3 NATURAL ATTENUATION MONITORING DATA

The groundwater monitoring program included collection and analysis of samples for general chemistry parameters and metals (total and dissolved) at various monitoring wells since 1996. Initially, these data were used to assist with the design and operation of the groundwater treatment system. Beginning in 2001, a monitoring program was initiated to specifically collect data for assessment of natural attenuation of VOCs in lower aquifer groundwater.

The natural attenuation monitoring program includes sampling and analysis of VOC parameters and degradation products, and monitoring for general chemistry and redox indicator parameters. Samples were collected on a biennial basis from select monitoring well locations, primarily including MW73, MW90, MW91, MW93, MW95, MW96, MW98, MW101, MW102, and MW104, beginning with Round 15 (2001), followed by Round 16 (2002), Round 17 (2003), Round 19 (2005), Round 23 (2007), and Round 29 (2009).

The analytical results for VOCs, dissolved gases, and ethanol are included in Appendix A. The analytical results for metals and general chemistry parameters for monitoring well samples collected since 1996 are included in Table B-1 of Appendix B. The field parameters that were monitored during monitoring well purging and sampling activities include pH, conductivity, temperature, dissolved oxygen (DO), oxidation-reduction potential (ORP), and turbidity, and dissolved iron. These data are included in Table B-2 of Appendix B.

Round 29 Monitoring Results

Table 3.1 provides the Round 29 results for natural attenuation parameters for the most recent monitoring event for lower aquifer monitoring wells, including metals and general chemistry parameters. The Round 29 results for field parameters, including: DO, ORP, and pH are included in Table B-2 of Appendix B. The analytical results for VOCs are included in Table 3.2. The Round 29 monitoring results are discussed below.

Redox Indicators

Evaluation of redox indicators is conducted to determine whether conditions are conducive to the natural biodegradation of the VOCs that are present. DO and ORP values were measured at select monitoring wells and were <1 milligrams per litre (mg/L) (except MW95) and <50 mV, respectively, indicating that anaerobic groundwater conditions, necessary for reductive biodegradation, predominate over the study area. This was confirmed by the laboratory-analyzed redox indicator parameters [nitrate/nitrite, Mn(II), and Fe(II)] as discussed below.

Nitrate was detected at low concentrations (≤ 0.8 mg/L, MW98) relative to values that would be expected in oxidizing conditions, or was not detected. This indicates the existence of an anaerobic environment.

The presence of Mn(II) and Fe(II) in all of the investigative samples collected confirms that conditions are predominantly anaerobic throughout the study area. There was reasonably good correlation between most of the concentrations of field-measured and laboratory-measured Fe(II). Fe(II) concentrations of greater than 1 mg/L (indicative of ferrogenic conditions) were detected at monitoring wells MW73, MW90, MW91, MW93, MW95, and MW104. Ferrogenic conditions are conducive to biodegradation via reductive dechlorination. The lowest concentration of Fe(II) was detected at MW98 (0.77 mg/L), which correlates with the location of highest nitrate concentration, discussed above.

During Round 29, the total alkalinity up-gradient of the Site (130 mg/L at MW73) was lower than the values measured down-gradient of the Site, where values ranged from 250 mg/L (MW102) to 410 mg/L (MW98). This generally indicates an increase in biological activity in the down-gradient area, typically due to biodegradation.

The Round 29 concentration of sulfate up-gradient of the Site (262 mg/L at MW73) is higher than the concentrations at most down-gradient locations where values ranged

from 94.9 mg/L (MW101) to 178 mg/L (MW91). The exception to this general trend is at MW95 (254 mg/L). The decrease in sulphate concentrations between the up-gradient and down-gradient wells indicates that an increase in reducing conditions, corresponding to sulphate-reducing conditions, conducive to the biodegradation of chlorinated VOCs, exists at the Site. This is also good evidence that there is an increase in biological activity at the Site.

Overall, the redox data indicate that anaerobic conditions predominate over the study area. These anaerobic conditions are conducive to biodegradation of chlorinated VOCs via reductive dechlorination.

Daughter Product Formation

Qualitative assessment of natural attenuation includes determination of the presence/absence of specific degradation (i.e., daughter) products of VOCs. This can assist in determining whether VOCs are undergoing biotic and/or abiotic degradation and provide an indication of the specific degradation pathways that are prevalent. It is widely acknowledged in the technical literature that the ambient environmental conditions have significant influence on the rate at which daughter products form, and the rate at which the degradation occurs (e.g., Lyngkilde and Christensen, 1992; Carey et al., 1999).

Evaluation of VOC degradation products indicates that natural attenuation processes, including biodegradation, are occurring in the vicinity of the Site and down-gradient from the Site. The transformation pathways for chlorinated VOCs (CVOCs) are shown on Figure 3.1. The VOC degradation products discussed below include chloroethane, 1,1-DCA, 1,1-DCE, 1,2-DCE, and vinyl chloride.

Chloroethane, which is a direct degradation product of 1,2-DCA, was detected in the lower aquifer at EW1 in 2009, and has also been detected in the past at monitoring wells with elevated 1,2-DCA concentrations. Chloroethane was detected during Round 26 (2008) at MW68, EW1, and MW84 where the highest concentrations of 1,2-DCA were detected, indicating reductive dechlorination of 1,2-DCA is occurring in the area near the south end of the Site. Based on review of the groundwater database, chloroethane is detected in the presence of the parent compound 1,2-DCA and the highest recorded chloroethane concentration occurred at MW68 during Round 9 (1998). This corresponds to the location in which the highest 1,2-DCA concentrations have been detected. Chloroethane is not persistent and may be transformed into acetic acid, ethanol, or ethane, more rapidly than its precursor.

1,1-DCA is a direct degradation product of 1,1,1-TCA, and was detected at various monitoring wells during Round 29, including MW68, MW71, MW73 through MW80, MW83 through MW89, MW92, MW94, and MW95. It is noted that 1,1,1-TCA was detected at only four locations, i.e., MW69, MW83, MW85, and MW103, suggesting that biodegradation of 1,1,1-TCA has occurred.

1,1-DCE is a biodegradation product of TCE and is also the abiotic degradation product of 1,1,1-TCA. 1,1-DCE was detected in 9 of 39 investigative samples collected during Round 29 from monitoring wells MW84, MW86, MW87, MW88, MW90, MW91, MW92, MW95, and MW104. 1,2-DCE is also a biodegradation product of TCE, and the cis-1,2-DCE and/or trans-1,2-DCE isomers were detected in 32 of 39 investigative samples collected from monitoring wells during Round 29. Cis-1,2-DCE was detected at MW68 through MW77, MW79 through MW92, MW95, MW98 through MW102, MW104, and MW105. Trans-1,2-DCE was detected at MW77, MW80, MW84 through MW92, MW95, MW98, MW99, MW101, MW104, and MW105. The relative concentrations of 1,1-DCE, cis-1,2-DCE, and trans-1,2-DCE indicate that these compounds are a product of biodegradation.

Vinyl chloride, which is typically considered a degradation product of DCE, was detected in 10 of 39 investigative samples during Round 29. The detections were in samples collected from monitoring wells MW70, MW87, MW88, MW90, MW91, MW92, MW93, MW95, MW98, and MW104.

During Round 29, the pH was measured in the field at select monitoring wells as part of the stabilization parameters during low-flow purging. At all of the wells except MW90, the pH values ranged from 7.14 to 8.51, which is within the optimal range (i.e., $5 < \text{pH} < 9$) for biodegradation of VOCs. The pH value at MW90 was 9.18, slightly above the optimal range. However, this value is inconsistent with previous pH measurements at this location, indicating that this value may be anomalously high.

Summary

The natural attenuation evaluation discussed above indicates that conditions are favorable for the occurrence of biodegradation via reductive dechlorination of the VOCs detected in lower aquifer groundwater in the study area. The degradation product evidence available to date indicates that these biodegradation processes are occurring in the vicinity of the Site and down-gradient from the Site.

4.0 OVERVIEW OF MNA PILOT PROGRAM

4.1 PURPOSE AND OBJECTIVES

The purpose of the MNA Pilot Program is to provide information required to assess the efficacy of a MNA approach for the lower aquifer groundwater in the 1,2-DCA plume area.

The objectives of the pilot program are as follows:

1. Re-establish hydraulic conditions similar to those immediately prior to initiation of the Pristine pump and treat system ("pre-pumping" conditions) within the 1,2-DCA plume area by turning off extraction wells EW2 through EW5 and allowing groundwater levels to recover
2. Implement a groundwater monitoring program for natural attenuation parameters, including relevant water quality parameters, VOCs, and degradation products
3. Evaluate changes in VOC concentrations and/or mass over time, and redox conditions within the lower aquifer, to enable an assessment based on MNA guidance (as detailed in U.S. EPA guidance, referenced in Section 5.1)
4. If necessary, conduct further assessment using microcosm studies based on MNA guidance

4.2 SHUTDOWN OF OFF-SITE EXTRACTION WELLS

During the pilot study, the off-Site lower aquifer extraction wells (EW2, EW3, EW4, and EW5) will be turned off and isolated from the underground force main and treatment system using existing valves. Operation of on-Site groundwater extraction systems, including Zone A and Zone B dewatering, upper aquifer well GW108, and lower aquifer extraction well EW1, will be unaffected by the shutdown. The treatment system operations will be adjusted to accommodate the reduced overall pumping rate of approximately 50 gpm.

4.3 GROUNDWATER MONITORING

Following shutdown of the extraction wells, groundwater monitoring will be conducted to assess changes in water levels and groundwater chemistry. Groundwater level monitoring will be conducted on a quarterly basis using all existing Pristine lower

aquifer monitoring wells and piezometers. The water level data will be tabulated and compared to pre-shutdown data following each event to assess water level recovery at individual locations. These data will also be used to assess water level and off-Site gradient conditions relative to "pre-pumping" water level data (based on water level data measurements prior to October 1997).

It is anticipated that the lower aquifer groundwater levels after shutdown of the off-site extraction wells will recover sufficiently to re-establish the southerly hydraulic gradient condition observed in the plume area prior to commencement of pumping. Groundwater level contour maps will be prepared following each quarterly monitoring event to facilitate interpretation of the groundwater flow direction within the plume area. The water level data and the contour maps will be provided to the agencies for review. In the unlikely event that groundwater recovery does not occur after shutdown of the extraction wells and a southerly hydraulic gradient is not re-established, the agencies will be advised and recommended modifications of the pilot program will be presented.

The groundwater sampling program will commence after the water levels have recovered to "pre-pumping" conditions, and will include six separate monitoring rounds over the course of 3 years. This will include three "annual" sampling events typically conducted in July/August and three supplemental sampling events of select wells (as listed in Table 4.1) in January/February. Six sampling events are required in order to have a statistically significant confidence in the sampling results. After the six sampling rounds are completed the monitoring program will be re-assessed to identify any data gaps and the requirements for further sampling. In addition, two supplemental quarterly monitoring events will be conducted in the first year after water level recovery at monitoring wells located in the vicinity of the southern end of the 1,2-DCA plume (i.e., MW90, MW91, MW94, MW95, and MW101). These data will be used to assist with determining stabilization of groundwater conditions and possible rebound effects following cessation of pumping at the off-Site extraction wells.

The sampling program outlined above will replace the current monitoring well sampling program for the Site, with the following clarifications. The current sampling program for upper aquifer wells, Zone A and Zone B influent, and lower aquifer extraction wells will not be affected by the sampling program outlined herein. Also, the 5-year monitoring program, which is next scheduled for 2012, will not be affected by the sampling program outlined herein. In this case, the annual pilot program sampling will be incorporated into the 5-year sampling event.

The groundwater sampling program is outlined in Table 4.1. The following parameters are required for the natural attenuation evaluation:

- Field parameters, including: dissolved oxygen (DO), oxidation-reduction potential (ORP), pH, temperature, conductivity, and turbidity
- Project-specific VOCs (see Table 4.2)
- Dissolved Organic Carbon (DOC)
- Redox indicators: nitrate, nitrite, manganese (II), iron (II), sulfide, sulfate, and methane
- Geochemical Indicator: alkalinity
- Biodegradation end-products: ethane, ethene, and chloride

The collection of groundwater samples will be conducted using low-flow purging (LFP) and sampling protocols consistent with the existing program as outlined in the Sampling and Analysis Plan (CRA, 1998). The field equipment calibration procedures are provided in Appendix C. The analytical methods are shown in Table 4.2. Groundwater monitoring reports will be prepared and submitted to U.S. EPA and Ohio EPA on an annual basis. The reports will be submitted following the summer sampling event each year, and will include the results from both the January/February and July/August sampling events.

4.4 CONTINGENCY PLAN

During the MNA pilot program, monitoring data will be assessed to determine whether the off-Site extraction wells need to be re-started to control possible VOC migration and plume expansion. It is expected that some changes in groundwater chemistry may occur due to concentration rebound effects as a result of cessation of pumping, and that the VOC concentrations will subsequently re-stabilize. However, the potential for expansion of the 1,2-DCA plume during the pilot program is limited due to the expected average rate of groundwater movement near the south end of the plume, which is estimated to be approximately 300 feet per year⁹.

The contingency plan described herein includes an assessment of re-stabilization of groundwater chemistry and potential 1,2-DCA plume expansion at the end of the first

⁹ This is based on a hydraulic conductivity of 90 feet per day and a porosity value of 0.3 (from the Hydrogeologic Modeling Report dated February 2004) and a hydraulic gradient of 0.00266 (from groundwater measurements in August 1997 before the initiation of pumping).

year of groundwater sampling following the cessation of pumping, and on an annual basis thereafter. Groundwater monitoring will be conducted as described in Section 4.3.

The initial assessment (at the end of the first year of groundwater sampling) will consider changes in groundwater chemistry at key locations near EW5 (i.e., MW90, MW91, MW94, MW95, and MW101) and will include a statistical evaluation of concentration trends using applicable methods from U.S. EPA guidance (U.S. EPA, 2009). The analytical results from the first year of groundwater monitoring for these wells will be compared to the analytical results for monitoring events prior to cessation of pumping. In addition, changes in chemical concentrations will be assessed at other monitoring locations to the south and southwest of the 1,2-DCA plume (i.e., MW96, MW97, MW98, MW99, MW100, MW102, MW103, MW104, and MW105). For these locations, the assessment will be qualitative since the 1,2-DCA results are predominantly non-detect, but will focus on determining possible expansion of the 1,2-DCA plume. For example, an increased frequency of 1,2-DCA detections at these locations relative to pre-shutdown monitoring results would be an indication of plume expansion.

The results of this evaluation will be presented to the U.S. EPA in the annual groundwater monitoring report along with conclusions regarding potential plume expansion and recommendations regarding adjustments to the pilot program and possible re-activation of the extraction well(s). If a decision is made to re-start the extraction system, the most likely initial response will involve re-starting EW5 at the current pumping rate of approximately 75 gpm, as a means to limit potential 1,2-DCA migration while minimizing the potential for drawing groundwater from non-Pristine sources into the extraction system. Further monitoring will be conducted to assess potential plume migration based on sampling of monitoring wells where potential plume migration was indicated based on the preceding assessment.

5.0 MONITORED NATURAL ATTENUATION STUDY

The lower aquifer groundwater pump and treat system has successfully reduced concentrations of the VOCs in the 1,2-DCA plume by around 95 percent. The natural attenuation study will be performed to determine whether the levels of VOCs remaining in the 1,2-DCA plume presently exceeding performance goals/MCLs can be further reduced by natural attenuation processes to acceptable levels within a reasonable time frame.

5.1 MNA GUIDANCE

To establish that natural attenuation is ongoing, the U.S. EPA OWSER Directive (U.S. EPA, 1999) identifies three lines of evidence that can be used to evaluate the efficacy of MNA, as reproduced below:

- 1) *"Historical groundwater and/or soil chemistry data that demonstrate a clear and meaningful trend of decreasing contaminant mass and/or concentration over time at appropriate monitoring or sampling points. (In the case of a groundwater plume, decreasing concentrations should not be solely the result of plume migration. In the case of inorganic contaminants, the primary attenuating mechanism should also be understood).*
- 2) *Hydrogeologic and geochemical data can be used to demonstrate indirectly the type(s) of natural attenuation processes active at the site, and the rate at which such processes will reduce contaminant concentrations to required levels. For example, characterization data may be used to quantify the rates of contaminant sorption, dilution, or volatilization, or to demonstrate and quantify the rates of biological degradation processes occurring at the site.*
- 3) *Data from field or microcosm studies (conducted in or with actual contaminated site media) which directly demonstrate the occurrence of a particular natural attenuation process at the site and its ability to degrade the contaminants of concern (typically used to demonstrate biological degradation processes only)."*

The U.S. EPA guidance also explains that unless historical data (number 1 above) are sufficient to support a decision to use MNA, then data characterizing the nature and rates of natural attenuation processes (number 2 above) should be provided. Where the latter are also inadequate or inconclusive, data from microcosm studies (number 3 above) may also be necessary.

The natural attenuation data assessment for the Pristine Site will focus on the first and second lines of evidence described above. Depending on the results of the assessment, microcosm studies could possibly be considered. In this event, a separate work plan will be developed.

5.2 DATA ASSESSMENT

The natural attenuation study will focus on data collected from the monitoring program described in Section 4.3, but will also use historical data, where appropriate. In order to provide a representation of groundwater conditions that are not directly affected by the influences of prior pumping, the assessment will focus on data collected after stabilization of groundwater levels to "pre-pumping" conditions.

Consistent with the technical protocols, a weight-of-evidence approach will be applied to demonstrate the occurrence of natural attenuation processes at the Site. This evaluation will include examining trends in the geochemical and redox indicator parameter data along a common groundwater flow path to evaluate indirectly the type(s) of natural attenuation processes occurring at the Site. Consistent with the technical protocols, the lines of evidence to be evaluated consists of the following:

- Steady-state (stable) or receding plume conditions
- Presence of degradation products and/or metabolic end products
- Geochemical and redox indicator parameters demonstrating the occurrence of biodegradation processes
- Availability of organic substrate to sustain microbial activity

These lines of evidence will be evaluated using qualitative means as described below.

- Plume Conditions (temporal and spatial trends)

Groundwater quality data will be evaluated to assess reductions in VOC concentrations over time and along the groundwater flow path. Intra-well temporal trends will be evaluated to determine whether concentration trends at a given location are decreasing, stable, or increasing over time. Focus will be on data collected following the re-establishment of "pre-pumping" groundwater flow conditions, but the entire sampling history at each sampling location will be considered. If statistically significant concentration trends are detected, they will be used to calculate biodegradation/attenuation rates.

Once it has been determined that groundwater elevations have recovered to "pre-pumping" conditions, the concentration trends along the groundwater flowpath will be evaluated. Biodegradation/attenuation rates will be calculated, if appropriate, based on concentration changes along the flow path.

Chlorinated VOC concentration data will be evaluated on an annual basis to determine if trends exist that may require modifications to the sampling frequency.

If necessary based on the qualitative assessment, consideration will be given to using quantitative modeling methods. Final selection of the analysis method, if necessary, will occur when the data are available.

Concentration trends over time will be evaluated using standard statistical methods during each (annual) reporting period. Figures with databoxes of the historical and most current data will be presented, and locations where statistically-significant trends were detected will be highlighted. The illustration of statistical trends on a map of the Site will help determine the changes in the plume over time.

- Characterization of Degradation (i.e., "daughter") Products and Metabolic Byproducts

Further qualitative natural attenuation evaluation involves analysis of the presence of specific degradation (i.e., "daughter") products of the VOCs of interest in order to determine whether VOCs are undergoing degradation. These data may also provide an indication of the specific biodegradation pathways that are occurring. For example, the presence of ethene in groundwater provides evidence of vinyl chloride biodegradation via reductive dechlorination.

The primary indicator of 1,2-DCA degradation is ethene, a daughter product of 1,2-DCA degradation. Chen et al. (1996) and Semprini et al. (1995) have observed the degradation of chlorinated aliphatic hydrocarbons under anaerobic conditions to ethene, without the detection of ethane as a product. Another daughter product that may be attributed to 1,2-DCA degradation is chloroethane.

The relative ratios of DCE isomers are used to provide information regarding the origin of DCE in groundwater. There are three DCE isomers: 1,1-DCE, cis-1,2-DCE, and trans-1,2-DCE. When DCE is released to the environment anthropogenically, the ratios of the three isomers are relatively equal. When DCE is produced through biodegradation of TCE, production of the cis-1,2-DCE isomer is favored over that of trans-1,2-DCE and 1,1-DCE (Wiedemeier et al., 1999; and Wiedemeier et al., 1996). Therefore, evaluation of DCE isomers provides a qualitative indication of the presence of 1,2-DCE as a product of TCE biodegradation.

The concentration changes of the daughter products will be evaluated in relation to the concentration changes in the parent products. If concentrations of the daughter product are stable or increasing faster than those of the parent product, or if the

concentrations of the daughter product are decreasing over time more slowly than that of the parent product, then it will be concluded that continued production of the daughter product is occurring.

- Redox Zone Delineation Including Identification of Electron Donors and Acceptors

An evaluation of redox indicator parameters will be conducted to determine whether conditions in the groundwater flow system are conducive to biodegradation of the VOCs present. This also involves evaluation of the specific biodegradation processes that are possible given the subsurface geochemical conditions.

- Presence of Substrate Source

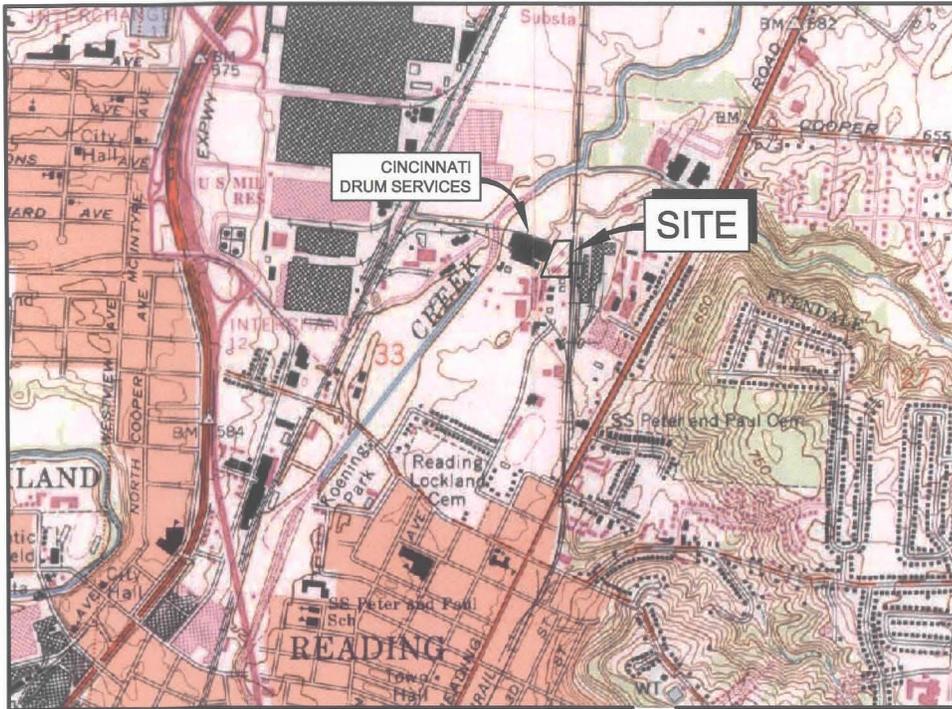
In order for biodegradation to occur, microorganisms require a readily available source of organic carbon to provide energy to carry the metabolic reactions that result in the reductive dechlorination of chlorinated VOCs. This source of organic carbon often is called organic substrate, and may take the form of natural organic matter or anthropogenic organic matter, which is usually rich in organic carbon that can be readily consumed by microorganisms.

5.3 REPORTING

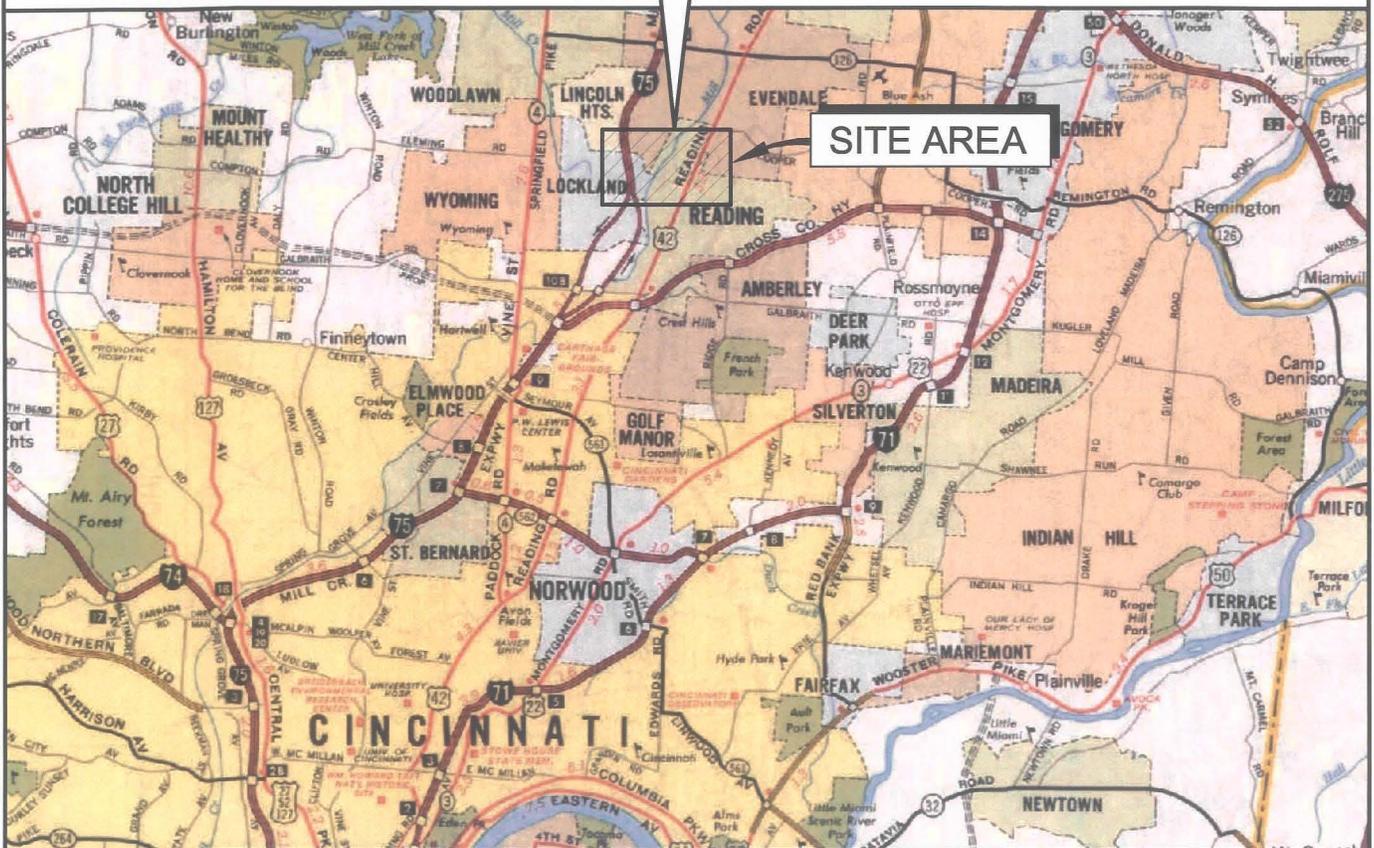
As discussed in Section 4.3, groundwater monitoring reports will be prepared and submitted to U.S. EPA and Ohio EPA following the July/August sampling event each year. Annual evaluation of the chlorinated VOC concentration data will also be conducted, and recommendations for modification to the pilot program will be made, if necessary. In addition, following completion of the pilot program monitoring events, a natural attenuation assessment report will be prepared and submitted which provides the MNA Study results, conclusions, and recommendations.

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SOURCE: USGS QUADRANGLE MAP;
CINCINNATI EAST, OHIO



SOURCE: 1991 GOUSHA ROAD ATLAS

figure 1.1
SITE LOCATION
Pristine, Inc. Site



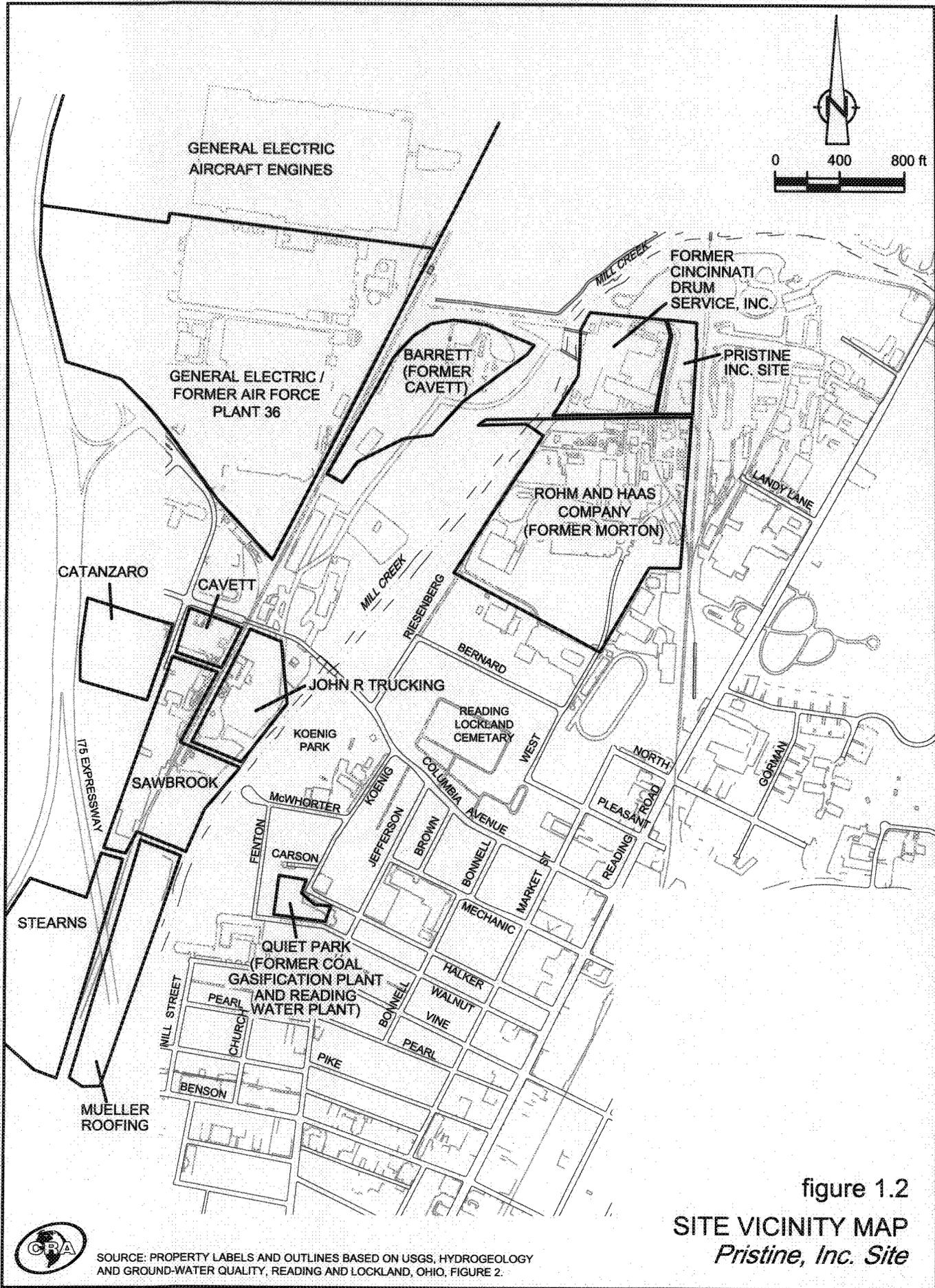


figure 1.2
 SITE VICINITY MAP
Pristine, Inc. Site



SOURCE: PROPERTY LABELS AND OUTLINES BASED ON USGS, HYDROGEOLOGY AND GROUND-WATER QUALITY, READING AND LOCKLAND, OHIO, FIGURE 2.

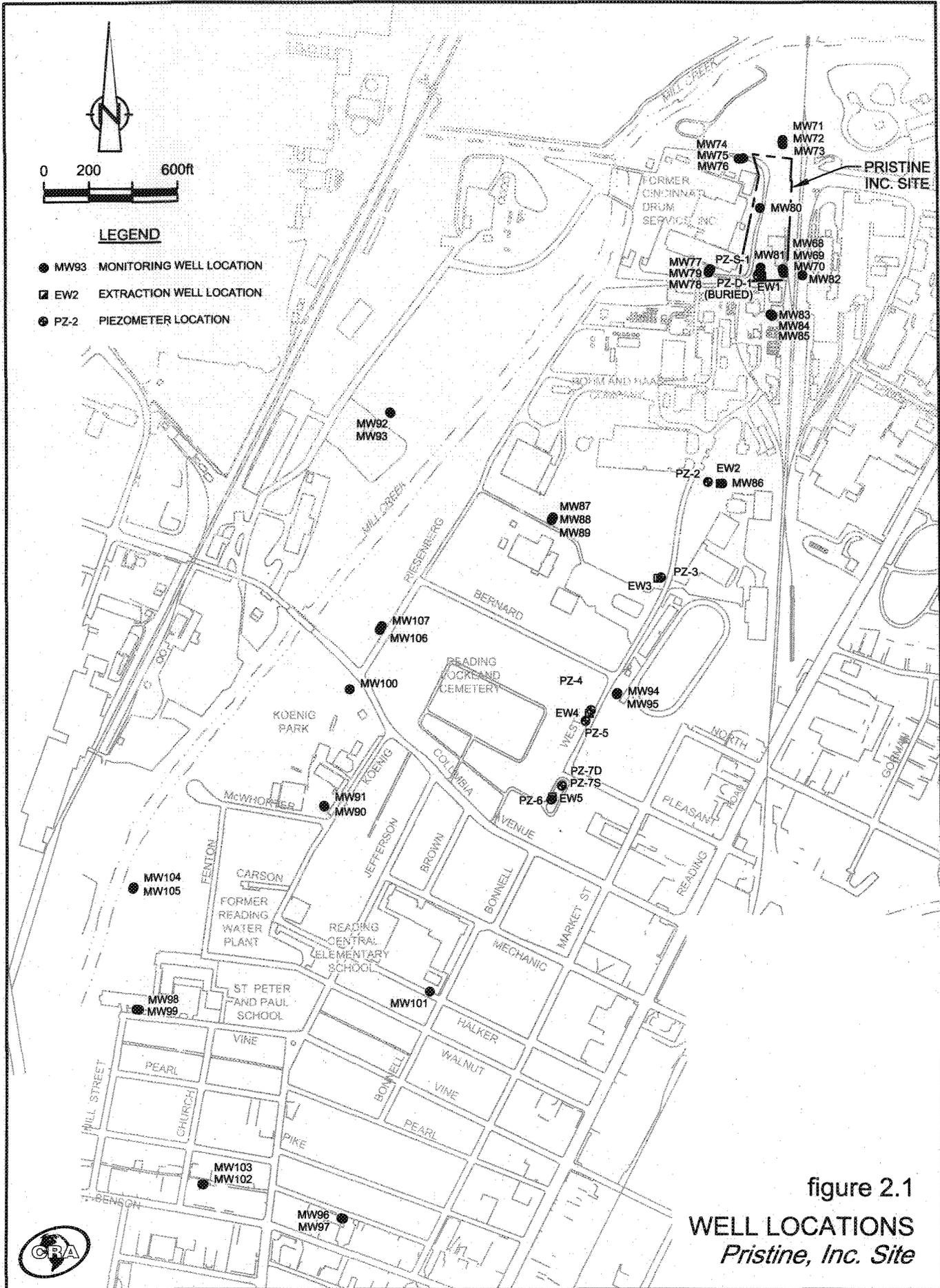


figure 2.1
WELL LOCATIONS
Pristine, Inc. Site



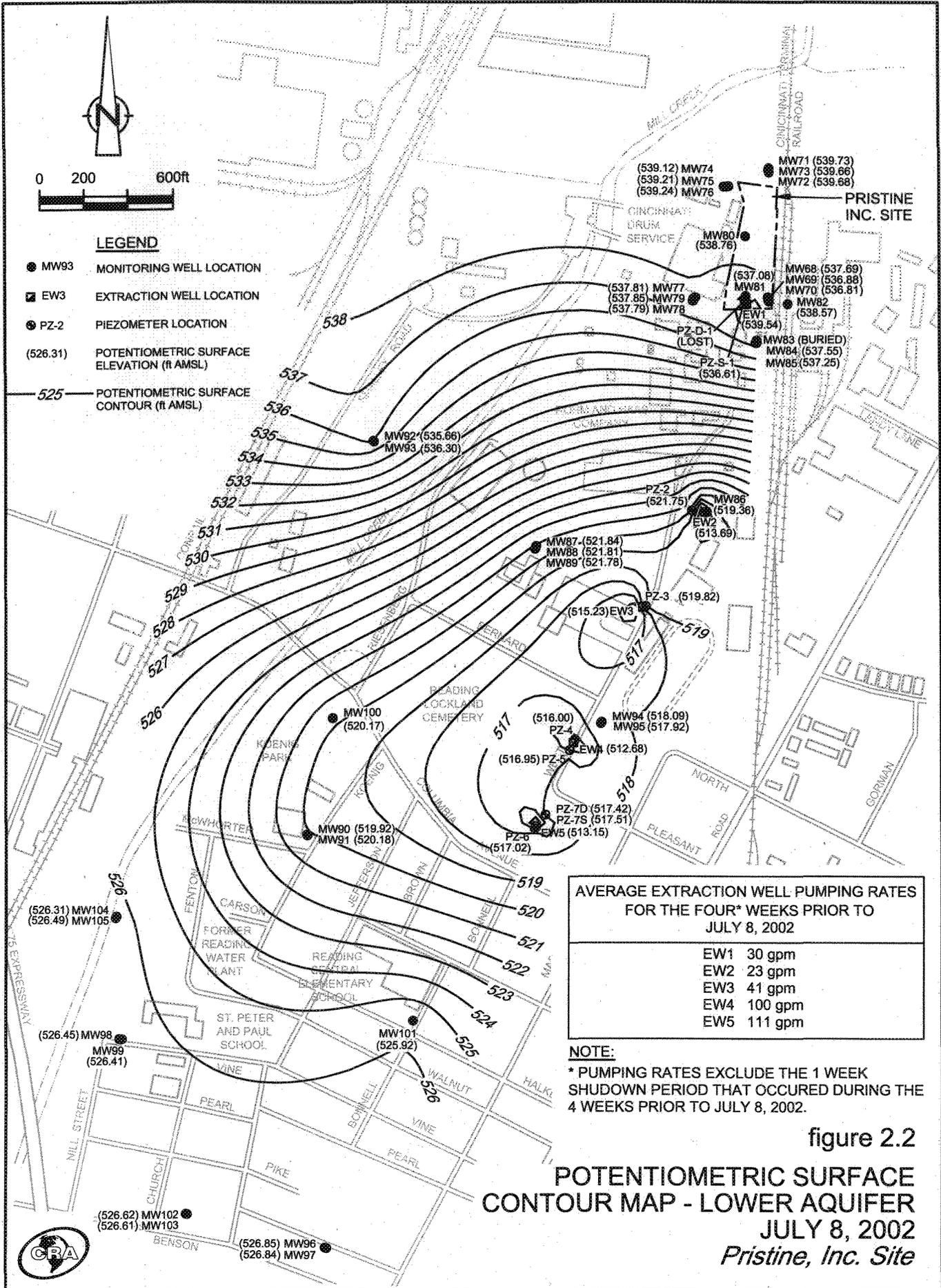


figure 2.2
POTENTIOMETRIC SURFACE CONTOUR MAP - LOWER AQUIFER
JULY 8, 2002
Pristine, Inc. Site

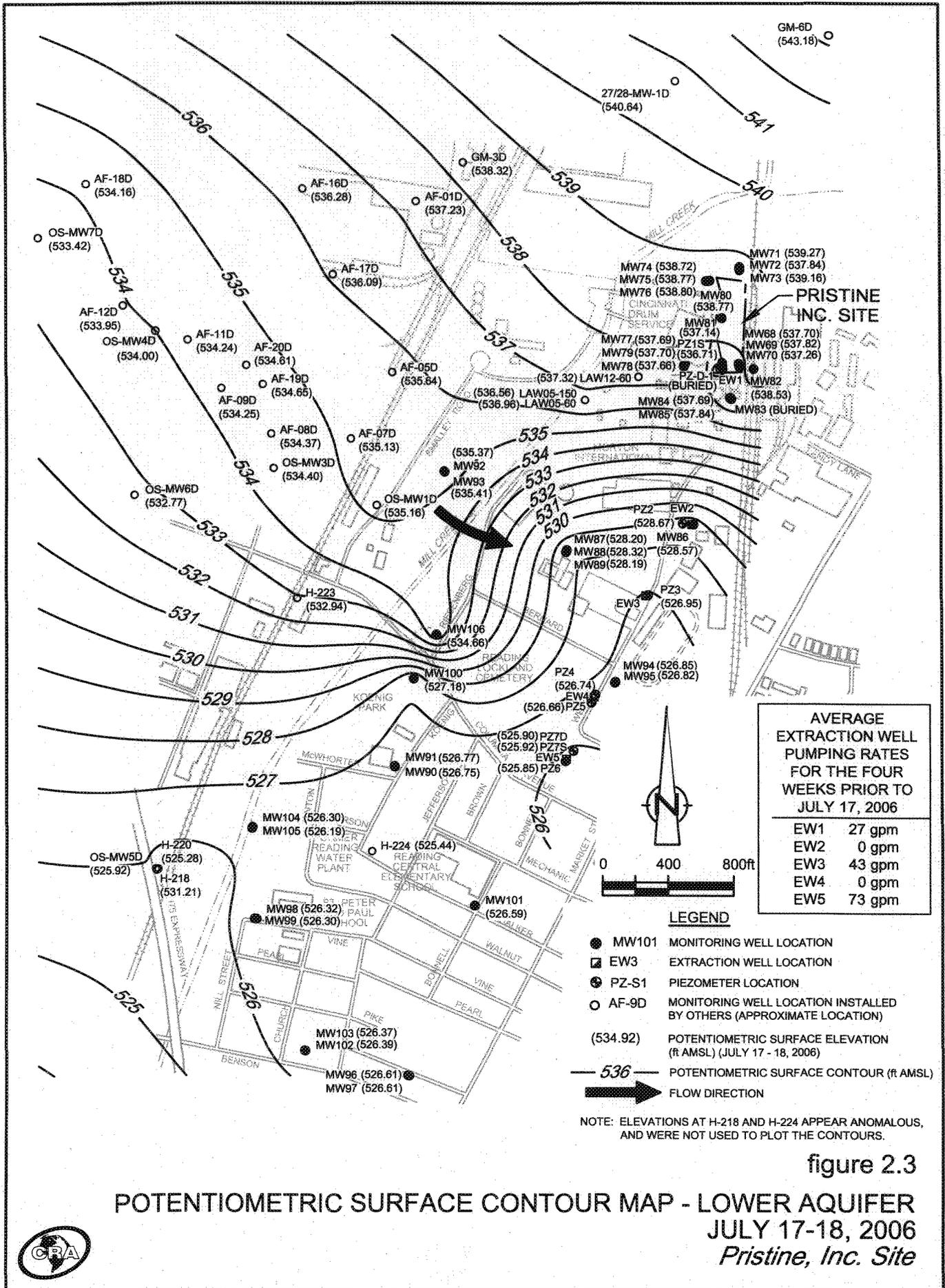
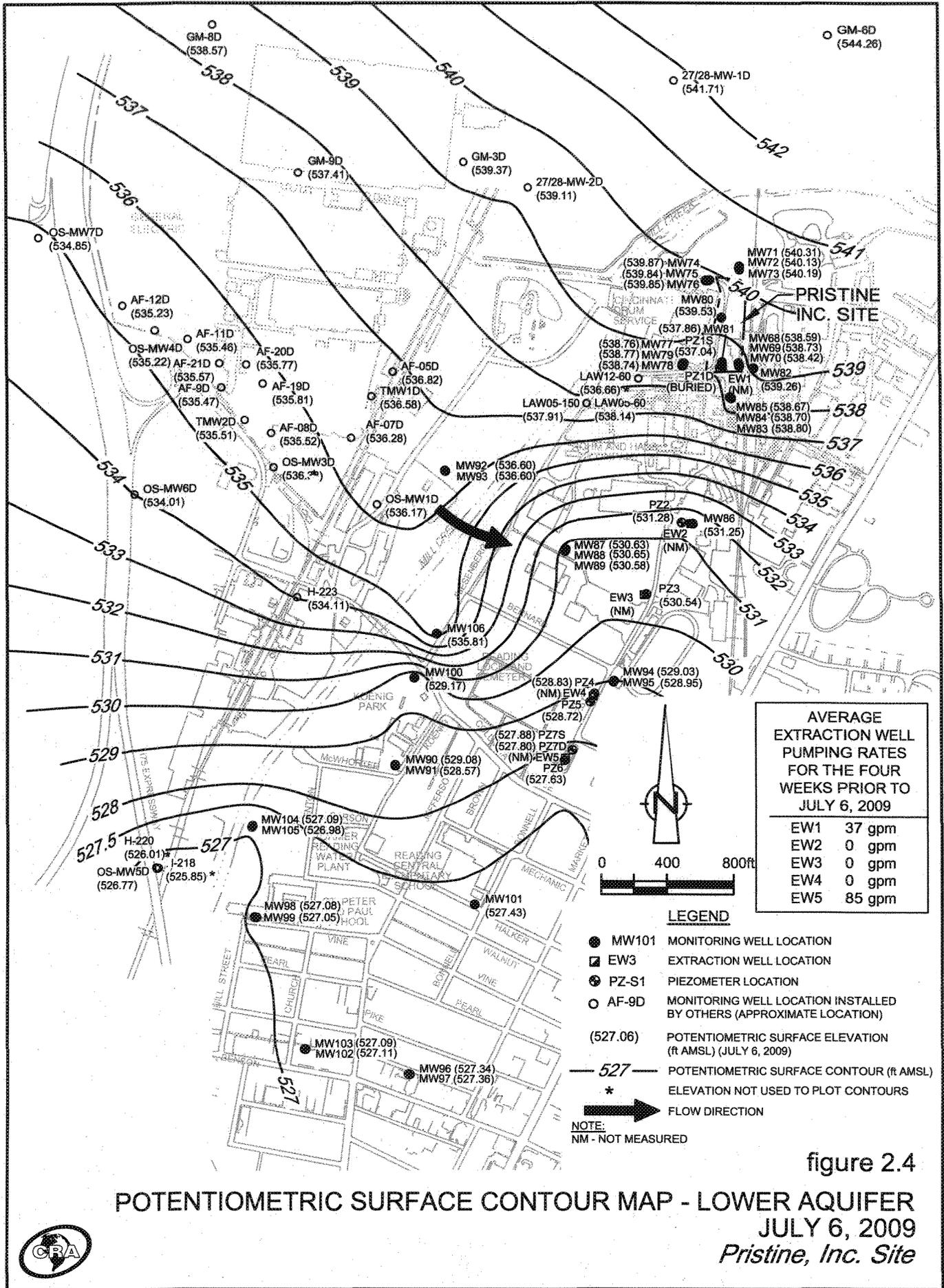


figure 2.3
POTENTIOMETRIC SURFACE CONTOUR MAP - LOWER AQUIFER
JULY 17-18, 2006
Pristine, Inc. Site





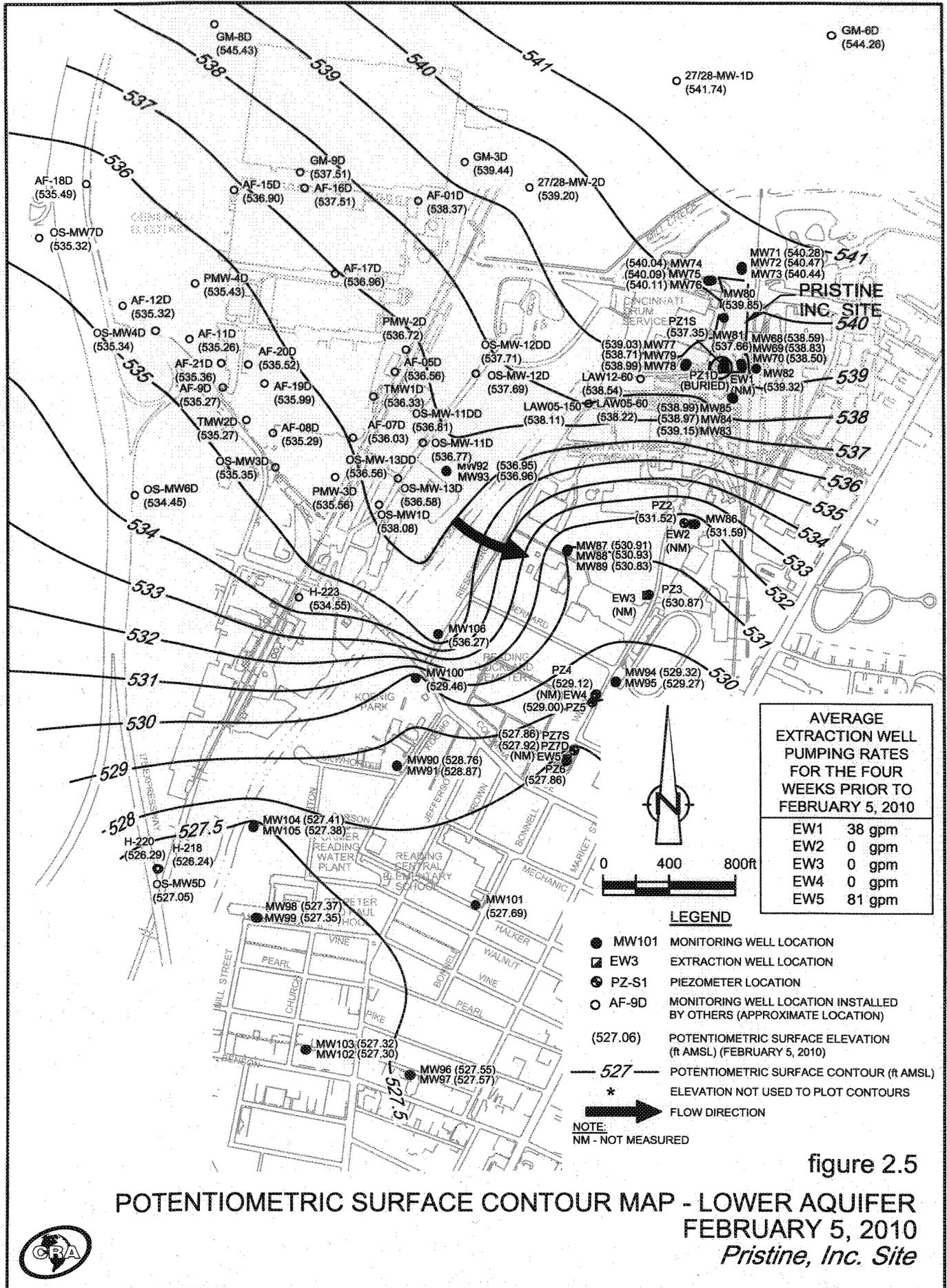


figure 2.5
POTENTIOMETRIC SURFACE CONTOUR MAP - LOWER AQUIFER
FEBRUARY 5, 2010
Pristine, Inc. Site



EW1	LA
4/20/2009	
1,1,2-Trichloroethane	5.8
1,2-Dibromoethane (Ethylene dibromide)	13
1,2-Dichloroethane	420
Benzene	7.1
Methylene chloride	31
Vinyl chloride	6.6

MW68	ULA
7/22/2009	
1,2-Dichloroethane	1400
Tetrachloroethane	16 J

MW70	LLA
7/9/2009	
Vinyl chloride	19

MW84	MLA
7/17/2009	
1,2-Dichloroethane	11

MW85	LLA
7/17/2009	
1,2-Dichloroethane	7.0/7.0

MW87	ULA
7/17/2009	
1,2-Dichloroethane	13

MW88	MLA
7/17/2009	
1,2-Dichloroethane	13

MW89	LLA
7/17/2009	
1,2-Dichloroethane	8.1

EW3	LA
4/21/2009	
1,2-Dichloroethane	120/120

EW4	LA
4/22/2009	
1,2-Dichloroethane	16

MW95	LLA
7/15/2009	
1,2-Dichloroethane	27

EW5	LA
4/21/2009	
1,2-Dichloroethane	23

MW91	LLA
7/16/2009	
Trichloroethene	15
Vinyl chloride	2.3

MW90	LLA
7/16/2009	
cis-1,2-Dichloroethene	87
Trichloroethene	18
Vinyl chloride	9.5

MW104	LLA
7/21/2009	
Trichloroethene	23
Vinyl chloride	5.1

MW98	LLA
7/21/2009	
Trichloroethene	19
Vinyl chloride	5.5

MW92	ULA
7/10/2009	
Vinyl chloride	5.1

0 100 300ft

LEGEND

OS-MW1 OS MONITORING WELL LOCATION
 MW82 LOWER AQUIFER MONITORING WELL LOCATION
 EW3 LOWER AQUIFER EXTRACTION WELL LOCATION
 UPPER AQUIFER VOLATILES MODIFIED FROM EARTHTECH, 1996, DASHED WHERE APPROXIMATE (1)
 ESTIMATED LOWER AQUIFER TRICHLOROETHENE, DASHED WHERE APPROXIMATE (1)
 LOWER AQUIFER 1,2-DICHLOROETHANE ESTIMATED PLUME DRAWN FROM DATA PRESENTED IN CONESTOGA-ROVERS AND ASSOCIATES, 2002 (1)
 SAMPLE LOCATION

MW90	LLA	AQUIFER DESIGNATION
7/16/2009		SAMPLE DATE
cis-1,2-Dichloroethene	87	CONCENTRATION (µg/L)
Trichloroethene	18	
Vinyl chloride	9.5	

PARAMETER
 J ESTIMATED
 ND NOT DETECTED AT ASSOCIATED VALUE
 CONCENTRATION EQUAL TO OR GREATER THAN MAXIMUM CONTAMINANT LEVEL (MCL)
 LA LOWER AQUIFER
 LLA LOWER LOWER AQUIFER
 MLA MIDDLE LOWER AQUIFER
 ULA UPPER LOWER AQUIFER

Chemical	MCL
1,1,2-Trichloroethane	5
1,2-Dibromoethane (Ethylene dibromide)	0.05
1,2-Dichloroethane	5
Benzene	5
cis-1,2-Dichloroethene	70
Methylene chloride	5
Tetrachloroethane	5
Trichloroethene	5
Vinyl chloride	2

(1) EXTENT OF KNOWN CONTAMINANT PLUMES, READING AND LOCKLAND, OHIO, AFTER 2003 STUDY; FIGURE 17, HYDROGEOLOGY AND GROUND-WATER QUALITY, READING AND LOCKLAND, OHIO, CHARLES W. SCHALK AND ROBERT A. DARNER, U.S. DEPARTMENT OF THE INTERIOR AND U.S. GEOLOGICAL SURVEY, 2004. (NOTE: TRICHLOROETHENE PLUME WAS INCORRECTLY IDENTIFIED AS "TRICHLOROETHANE" AND WAS CORRECTED ON THIS DRAWING.)

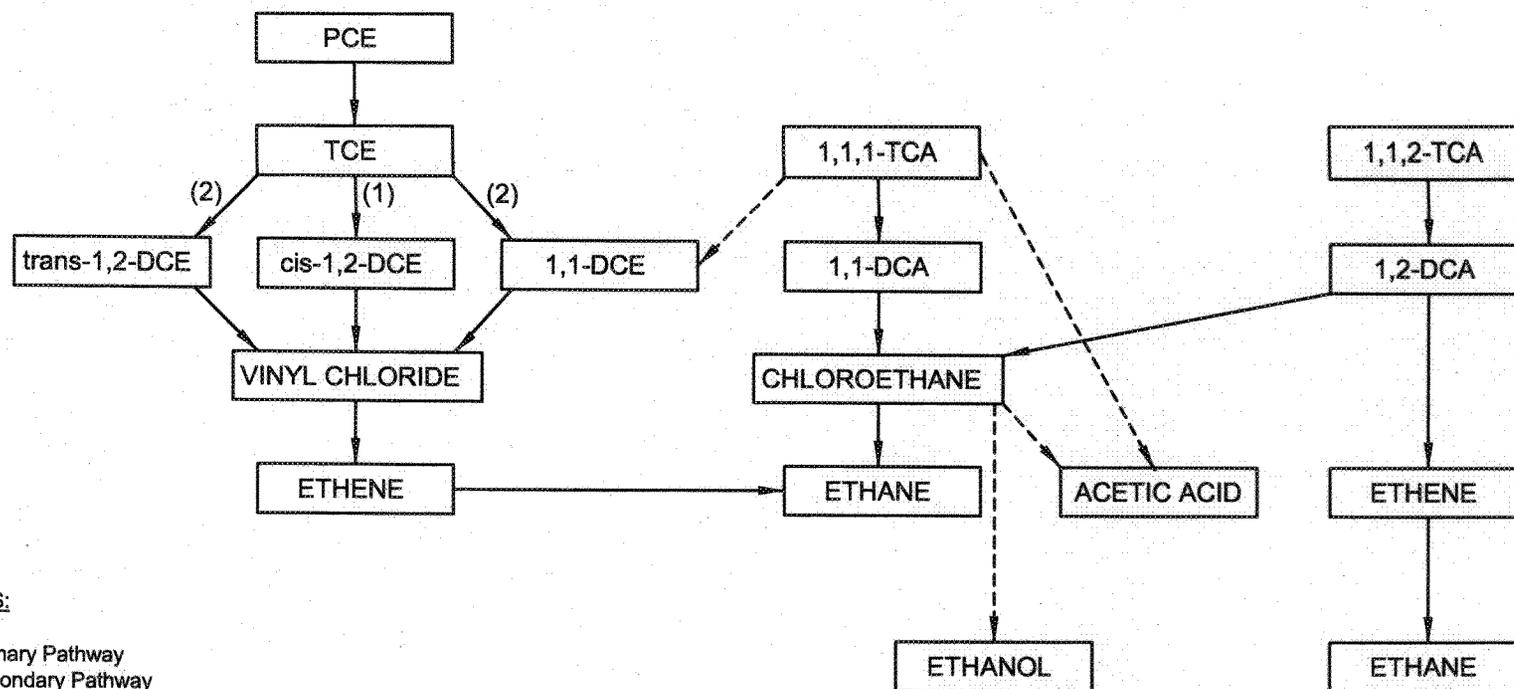
SCALE VERIFICATION
 THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

PRISTINE, INC. SITE
READING, OHIO
 ROUND 29 (2009)
 VOC CONCENTRATIONS EQUAL TO OR GREATER THAN MCLS IN LOWER AQUIFER WELLS

CONESTOGA-ROVERS & ASSOCIATES

Source Reference: CAGIS

Project Manager:	Reviewed By:	Date:	
J.H.	R.H.	AUGUST 2010	
Scale:	Project N ^o :	Report N ^o :	Drawing N ^o :
1:300	03250-02	075	figure 2.7



NOTES:

- (1) Primary Pathway
- (2) Secondary Pathway

The tendency for degradation along a given pathway is dependent on various factors, such as oxidation-reduction conditions, microbiological conditions, or nutrient availability.

DCE, Vinyl chloride, 1,2-DCA, and Chloroethane may undergo aerobic mineralization to CO₂.

TCE, DCE, Vinyl chloride, TCA, and 1,1-DCA may undergo aerobic cometabolism to CO₂.

Source(s):

Weidemeier, T.H., H.S. Rifai, C.J. Newell and J.T. Wilson, 1999.

Natural Attenuation of Fuels and Chlorinated Solvents in the Subsurface, John Wiley & Sons, Inc., U.S.A.

U.S.EPA, September 1998, Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water, EPA/600/R-98/128.

LEGEND

- > BIOTIC PATHWAYS
- - - -> ABIOTIC PATHWAYS

figure 3.1

TRANSFORMATION PATHWAYS FOR CVOCs
Pristine, Inc. Site



TABLE 21
HYDRAULIC MONITORING DATA - LOWER AQUIFER
PRISTINE, INC. SITE
READING, OHIO

Monitoring Well Location	Top of Casing Elevation (feet AMSL) ⁽¹³⁾	Coordinates ⁽¹³⁾		Water Level Elevations														
		X Easting	Y Northing	12/1/1993 (ft. AMSL)	3/5/1994 (ft. AMSL)	3/9/1994 (ft. AMSL)	7/11/1994 (ft. AMSL)	8/8/1994 (ft. AMSL)	8/24/1994 (ft. AMSL)	10/6/1994 (ft. AMSL)	10/25/1994 (ft. AMSL)	11/29/1994 (ft. AMSL)	12/14/1994 (ft. AMSL)	12/16/1994 (ft. AMSL)	12/19/1994 (ft. AMSL)	12/22/1994 (ft. AMSL)	1/30/1995 (ft. AMSL)	3/3/1995 (ft. AMSL)
MW68	581.31	1419954.6239	455942.8361	524.67	528.75	529.60	535.66	535.54	535.46	535.62	535.73	535.68	535.84	535.99	536.10	534.50	536.55	536.48
MW69	580.55	1419956.6634	455933.9109	524.69	528.81	529.85	535.75	535.57	535.50	535.65	535.72	535.70	535.90	536.19	536.04	534.98	536.62	536.56
MW70	580.57	1419959.1221	455924.7644	524.71	528.66	529.74	535.62	535.46	535.39	535.47	535.56	535.57	535.71	535.96	535.80	534.78	536.43	536.37
MW71	563.23 (11)	1419961.7080	456530.6206	525.20	529.94	530.60	536.39	536.16	536.22	536.36	536.46	536.48	536.54	536.60	536.84	536.04	537.24	537.20
MW72	563.21 (11)	1419961.8587	456510.1378	525.11	529.96	530.85	536.38	536.08	536.11	536.25	536.35	536.32	536.46	536.63	536.61	536.41	537.22	537.15
MW73	562.87 (11)	1419959.0170	456521.0050	524.69	530.00	530.90	536.38	536.10	536.15	536.27	536.36	536.32	536.46	536.65	536.64	536.42	537.25	537.16
MW74	568.12	1419754.8514	456444.5891	524.19	529.62	530.41	--	535.68	535.73	535.93	535.99	535.94	536.09	536.25	536.28	536.00	536.85	536.73
MW75	569.03	1419776.5511	456447.0656	524.29	529.70	530.57	536.03	535.74	535.79	535.95	536.01	536.01	536.13	536.28	536.34	536.07	536.90	536.81
MW76	568.24	1419767.1667	456444.6188	524.27	529.71	530.56	536.03	535.76	535.81	535.97	536.14	536.04	536.15	536.36	536.33	536.07	536.92	536.82
MW77	560.81	1419623.4240	455941.3092	524.46	528.79	529.73	535.26	535.11	535.05	535.26	535.34	535.41	535.41	535.72	535.54	535.34	536.13	536.06
MW78	560.64	1419614.2481	455926.0986	524.47	528.79	529.71	535.23	535.09	535.04	535.24	535.34	535.31	535.39	535.72	535.53	535.26	536.13	536.06
MW79	560.68	1419615.9374	455935.1443	524.50	528.84	529.75	535.26	534.98	535.09	535.28	535.38	535.35	535.44	535.76	535.57	535.34	536.18	536.09
MW80	580.18	1419851.4568	456220.2596	524.66	529.31	530.09	535.86	535.67	535.63	535.83	--	535.82	536.01	536.16	536.00	535.70	536.80	536.66
MW81	580.26	1419853.0872	455949.0002	524.73	528.85	529.86	535.67	535.50	535.45	535.58	535.66	535.17	535.78	536.09	535.07	534.12	529.68	536.61
MW82	582.84	1420047.0368	455912.3388	524.99	528.60	529.48	535.99	534.83	535.74	535.89	535.96	535.87	536.03	536.48	536.19	535.77	536.86	536.80
MW83	578.81	1419905.8747	455729.8847	525.05	527.76	529.05	535.58	535.36	535.34	535.51	535.56	535.37	535.66	536.06	535.83	535.02	536.49	536.48
MW84	579.29	1419902.6709	455735.7995	524.99	527.81	529.09	535.57	535.36	535.33	535.48	535.57	535.36	535.64	535.99	535.77	534.98	536.47	536.44
MW85	579.24	1419897.4775	455735.9602	524.55	527.52	528.79	535.33	535.19	535.28	535.32	534.28	535.14	535.37	535.82	535.56	534.82	536.28	536.20
MW86	563.87	1419671.8720	454965.7471	--	--	--	531.07	531.20	531.14	531.45	531.53	531.44	531.60	531.79	531.59	531.63	532.35	532.32
MW87	563.73	1418897.8801	454811.5722	--	--	--	534.88	531.08	530.98	531.29	531.42	531.29	531.48	531.73	531.46	531.73	532.04	531.99
MW88	563.87	1418895.4260	454805.8361	--	--	--	530.95	531.08	530.99	531.35	531.32	531.39	531.34	531.68	531.50	531.50	532.09	532.05
MW89	563.66	1418892.2774	454799.2978	--	--	--	530.79	530.91	530.85	531.07	531.14	531.15	531.14	531.51	531.33	531.27	531.90	531.81
MW90	548.30	1417852.9370	453498.0785	--	--	--	--	--	--	530.03	530.14	530.14	530.09	530.44	530.31	530.44	530.89	530.68
MW91	548.13	1417853.8304	453493.8406	--	--	--	--	--	--	529.87	529.98	529.99	529.98	530.33	530.19	530.30	530.80	530.58
MW92	555.20 (12)	1418154.2564	455286.0411	--	--	--	--	--	--	532.58	532.93	532.86	532.93	533.35	533.20	533.28	533.62	534.01
MW93	555.18 (12)	1418151.3022	455289.3712	--	--	--	--	--	--	532.38	532.69	532.70	532.74	533.20	533.05	533.41	533.45	533.83
MW94	563.67	1419192.7702	454009.5643	--	--	--	--	--	--	530.69	530.92	530.85	530.76	531.21	530.97	530.92	531.52	531.56
MW95	563.66	1419189.4579	454003.4909	--	--	--	--	--	--	530.68	530.74	530.76	530.83	531.13	530.91	530.88	531.49	531.35
MW96	556.58	1417939.8020	451615.9755	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW97	556.89	1417947.0934	451613.7959	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW98	549.52	1416999.7205	452570.0807	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW99	549.67	1417011.6975	452569.0427	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW100	548.30	1417967.7658	454028.9092	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW101	559.94	1418336.8420	452648.6332	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW102	551.79	1417313.8940	451767.6687	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW103	551.77	1417308.4888	451768.8439	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW104	551.82	1416985.0144	453127.6555	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW105	551.49	1416981.3948	453120.2389	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW106	550.57	1418104.0208	454297.2238	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PZ-1S	580.04	1419848.2139	455927.1842	--	--	--	--	--	--	--	--	--	535.99	--	--	535.52	536.46	536.43
PZ-2	563.03	1419605.5696	454971.9667	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PZ-3	563.39	1419395.4461	454537.0942	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PZ-4	563.57	1419071.4693	453931.6487	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PZ-5	564.57	1419046.4677	453881.6921	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PZ-6	562.52	1418887.7325	453525.3324	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PZ-7S	562.63	1418936.5916	453588.2321	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

TABLE 2.1
HYDRAULIC MONITORING DATA - LOWER AQUIFER
PRISTINE, INC. SITE
READING, OHIO

Monitoring Well Location	Top of Casing Elevation (feet AMSL) ⁽¹³⁾	Coordinates ⁽¹³⁾		Water Level Elevations														
		X Easting	Y Northing	3/29/1995 (ft. AMSL)	6/7/1995 (ft. AMSL)	9/8/1995 (ft. AMSL)	11/10/1995 (ft. AMSL)	1/19/1996 (ft. AMSL)	2/1/1996 (ft. AMSL)	3/13/1996 (ft. AMSL)	7/31/1996 (ft. AMSL)	8/22/1997 (ft. AMSL)	11/5/1997 (ft. AMSL)	11/19/1997 (ft. AMSL)	1/8/1998 (ft. AMSL)	2/3/1998 (ft. AMSL)	3/23/1998 (ft. AMSL)	6/9/1998 (ft. AMSL)
MW68	581.31	1419954.6239	455942.8361	537.13	537.03	537.19	537.02	538.32	538.83	539.19	--	539.38	537.42	537.83	538.42	538.54	538.85	539.73
MW69	580.55	1419956.6634	455933.9109	537.17	537.08	537.20	537.08	538.19	538.94	539.34	--	539.46	537.55	537.70	538.52	538.60	539.09	539.98
MW70	580.57	1419959.1221	455924.7644	536.98	536.93	536.98	536.77	537.97	538.91	539.10	--	539.22	537.25	538.10	538.34	538.04	538.79	539.60
MW71	563.23 (11)	1419961.7080	456530.6206	537.87	537.54	537.90	538.22	538.77	539.53	539.90	--	540.18	538.68	538.83	539.74	539.25	539.86	540.98
MW72	563.21 (11)	1419961.8587	456510.1378	537.80	537.46	537.76	538.24	538.68	539.51	539.96	--	540.04	538.54	538.79	539.81	539.15	539.66	540.99
MW73	562.87 (11)	1419959.0170	456521.0050	537.84	537.49	537.68	538.26	538.87	539.52	540.01	541.20	540.05	538.56	538.79	539.81	539.17	539.72	541.00
MW74	568.12	1419754.8514	456444.5891	537.42	537.14	537.30	537.85	538.58	539.06	539.53	--	539.63	538.17	538.42	539.19	538.72	539.26	540.56
MW75	569.03	1419776.5511	456447.0656	537.47	537.19	537.36	537.91	538.59	539.15	539.63	--	539.67	538.21	538.46	539.41	532.84 ⁽⁶⁾	539.31	540.61
MW76	568.24	1419767.1667	456444.6188	537.58	537.29	537.38	537.93	538.62	539.15	539.65	542.85	539.70	538.20	538.45	539.40	538.83	539.32	540.63
MW77	560.81	1419623.4240	455941.3092	536.70	536.57	536.70	537.13	537.76	538.29	538.78	--	538.87	537.32	537.59	538.47	537.89	538.42	539.63
MW78	560.64	1419614.2481	455926.0986	536.70	536.61	536.77	537.13	537.75	538.30	538.77	--	538.83	537.33	537.59	538.42	537.89	538.52	539.62
MW79	560.68	1419615.9374	455935.1443	536.74	536.65	536.82	537.19	537.80	538.34	538.82	540.06	538.90	537.37	537.64	538.46	537.95	538.56	539.67
MW80	580.18	1419851.4568	456220.2596	537.25	537.22	537.25	537.73	538.30	538.69	539.45	--	539.53	537.99	538.24	539.12	538.69	538.99	540.40
MW81	580.26	1419853.0872	455949.0002	537.22	537.01	--	--	538.08	538.74	539.22	--	--	536.97	536.99	538.01	538.39	538.36	539.60
MW82	582.84	1420047.0368	455912.3388	537.42	537.27	537.37	537.67	538.42	538.73	538.57	--	539.41	537.94	538.14	539.05	538.72	539.26	540.42
MW83	578.81	1419905.8747	455729.8847	536.87	537.03	537.06	537.52	--	--	--	--	--	--	--	--	--	--	--
MW84	579.29	1419902.6709	455735.7995	537.28	537.02	537.09	537.52	537.95	538.57	539.10	--	539.27	537.51	537.78	538.63	538.06	538.77	539.86
MW85	579.24	1419897.4775	455735.9602	536.00	536.81	536.79	537.28	537.72	538.29	538.88	540.24	539.12	537.33	537.57	538.45	537.82	538.65	539.65
MW86	563.87	1419671.8720	454965.7471	533.46	533.53	532.55	533.20	533.66	533.86	534.56	538.14 ⁽⁶⁾	--	528.55	527.93	529.19	525.77	533.45	532.02
MW87	563.73	1418897.8801	454811.5722	532.94	533.46	533.48	533.21	533.51	533.71	534.36	535.87	534.62	532.03	531.92	532.92	529.96	533.55	532.69
MW88	563.87	1418895.4260	454805.8361	533.55	533.15	532.95	533.04	533.40	533.72	534.37	535.88	534.65	532.09	531.95	532.96	530.00	533.59	532.75
MW89	563.66	1418892.2774	454799.2978	532.40	533.22	533.22	533.15	533.47	533.62	534.27	535.80	534.60	531.98	531.83	532.83	529.96	533.47	532.72
MW90	548.30	1417852.9370	453498.0785	531.39	532.26	531.85	531.73	532.23	532.39	533.06	534.88	533.33	531.50	531.29	532.21	529.65	532.15	532.09
MW91	548.13	1417853.8304	453493.8406	531.22	532.27	531.63	531.61	532.00	532.26	532.95	534.72	533.17	531.33	531.12	532.02	529.54	531.99	531.98
MW92	555.20 (12)	1418154.2564	455286.0411	534.99	534.97	534.39	534.57	534.94	535.47	536.04	537.44	536.13	534.89	535.23	535.14	535.19	535.86	537.12
MW93	555.18 (12)	1418151.3022	455289.3712	534.88	534.21	534.30	534.52	534.86	535.51	536.03	537.29	536.10	534.86	535.20	536.18	535.12	536.27	537.06
MW94	563.67	1419192.7702	454009.5643	532.00	533.01	532.43	532.45	533.22	533.05	533.78	535.34	534.11	532.00	531.73	532.70	530.02	532.83	532.40
MW95	563.66	1419189.4579	454003.4909	531.67	532.91	532.44	532.47	533.21	533.07	533.75	535.27	534.02	531.99	531.71	532.68	529.93	532.78	532.37
MW96	556.58	1417939.8020	451615.9755	--	--	--	--	525.96	526.49	527.21	--	527.42	526.26	526.54	527.13	526.48	526.87	528.14
MW97	556.89	1417947.0934	451613.7959	--	--	--	--	526.03	526.67	527.22	--	527.40	526.24	526.54	527.13	526.59	526.86	529.16
MW98	549.52	1416999.7205	452570.0807	--	--	--	--	525.66	526.26	526.86	--	526.87	525.91	526.24	527.52	526.10	526.57	527.78
MW99	549.67	1417011.6975	452569.0427	--	--	--	--	525.67	526.24	526.82	--	527.22	525.87	526.20	526.83	526.06	526.53	527.75
MW100	548.30	1417967.7658	454028.9092	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW101	559.94	1418336.8420	452648.6332	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW102	551.79	1417313.8940	451767.6687	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW103	551.77	1417308.4888	451768.8439	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW104	551.82	1416985.0144	453127.6555	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW105	551.49	1416981.3948	453120.2389	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW106	550.57	1418104.0208	454297.2238	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PZ-15	580.04	1419848.2139	455927.1842	537.84	536.96	537.02	--	538.15	538.72	539.20	--	--	--	--	--	538.44	--	539.84
PZ-2	563.03	1419605.5696	454971.9667	--	--	--	--	--	--	--	--	--	--	--	--	528.78	529.11	--
PZ-3	563.39	1419395.4461	454537.0942	--	--	--	--	--	--	--	--	--	--	--	--	527.69	533.43	530.51
PZ-4	563.57	1419071.4693	453931.6487	--	--	--	--	--	--	--	--	--	--	--	--	529.94	531.72	532.40
PZ-5	564.57	1419046.4677	453881.6921	--	--	--	--	--	--	--	--	--	--	--	--	530.00	533.73	532.41
PZ-6	562.52	1418887.7325	453525.3324	--	--	--	--	--	--	--	--	--	--	--	--	530.10	532.52	532.41
PZ-75	562.63	1418936.5916	453588.2321	--	--	--	--	--	--	--	--	--	--	--	--	532.33	531.92	533.22

TABLE 21
HYDRAULIC MONITORING DATA - LOWER AQUIFER
PRISTINE, INC. SITE
READING, OHIO

Monitoring Well Location	Top of Casing Elevation (feet AMSL) ⁽¹³⁾	Coordinates ⁽¹³⁾		Water Level Elevations														
		X Easting	Y Northing	7/30/1998	9/18/1998	10/21/1998	10/29/1998	11/25/1998	12/11/1998	1/15/99 ⁽¹⁷⁾	2/9/1999	4/12/1999	8/16/1999	1/12/2000	4/4/2000	7/25/2000	11/27/2000	1/15/2001
				(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)	(ft. AMSL)
MW68	581.31	1419954.6239	455942.8361	540.05	537.80	536.92	537.09	536.72	536.19	--	537.71	537.60	535.43	535.94	537.28	536.01	535.50	536.43 ⁽⁶⁾
MW69	580.55	1419956.6634	455933.9109	540.11	537.95	537.11	537.18	537.03	536.41	--	537.83	537.79	535.53	536.40	537.58	536.11	535.63	534.87
MW70	580.57	1419959.1221	455924.7644	539.61	537.50	536.36	536.48	536.20	535.49	--	536.81	536.78	534.62	535.48	536.64	534.00	534.65	534.65
MW71	563.23 (11)	1419961.7080	456530.6206	541.01	539.03	538.57	538.58	538.27	536.05	--	539.61	539.57	536.81	537.84	539.09	537.91	537.49	537.38
MW72	563.21 (11)	1419961.8587	456510.1378	540.72	538.89	538.52	538.45	538.45	537.85	--	539.45	539.19	536.61	537.80	539.10	537.78	537.30	537.30
MW73	562.87 (11)	1419959.0170	456521.0050	540.80	538.90	538.26	538.71	538.45	535.93	--	539.44	539.23	536.64	537.83	539.14	537.84	537.35	537.30
MW74	568.12	1419754.8514	456444.5891	540.34	538.50	538.11	538.01	538.05	537.44	--	538.92	538.71	536.17	537.33	538.52	537.34	536.89	536.71
MW75	569.03	1419776.5511	456447.0656	540.39	538.55	538.15	538.08	538.11	537.50	--	538.91	538.77	536.23	537.39	538.58	537.40	536.91	536.93
MW76	568.24	1419767.1667	456444.6188	540.40	538.58	538.16	538.10	538.13	537.51	--	538.97	538.78	536.24	537.43	538.61	537.43	536.96	536.80
MW77	560.81	1419623.4240	455941.3092	539.52	537.61	536.95	536.90	536.89	536.14	--	537.51	537.31	534.95	536.02	536.90	535.93	535.51	535.57
MW78	560.64	1419614.2481	455926.0986	539.52	537.60	536.94	536.88	536.85	536.13	--	537.50	537.28	534.91	535.99	536.86	535.93	535.49	535.50
MW79	560.68	1419615.9374	455935.1443	539.56	537.65	537.00	536.93	532.91 ⁽⁶⁾	536.19	--	537.54	537.33	534.97	536.01	536.92	535.98	535.51	535.53
MW80	580.18	1419851.4568	456220.2596	540.22	538.31	537.80	537.85	537.77	537.11	--	538.58	538.42	535.90	546.00 ⁽⁶⁾	538.02	536.97	536.48	536.46
MW81	580.26	1419853.0872	455949.0002	539.58	535.79	536.67	536.80	536.62	535.87	--	537.36	536.22	535.35	535.98	537.25	535.58	534.99	535.03
MW82	582.84	1420047.0368	455912.3388	540.41	540.21	537.59	537.57	537.36	536.81	541.79	538.32	538.24	535.79	536.74	538.06	536.65	536.12	536.12
MW83	578.81	1419905.8747	455729.8847	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW84	579.29	1419902.6709	455735.7995	539.78	537.67	536.65	536.59	536.29	535.60	--	536.99	536.89	534.58	535.38	536.43	535.27	530.91	534.89
MW85	579.24	1419897.4775	455735.9602	539.52	537.43	536.26	536.20	535.92	535.09	--	536.49	536.39	534.11	534.90	535.94	534.80	530.47	534.46
MW86	563.87	1419671.8720	454965.7471	523.46	528.93	516.15	515.78	513.84	510.56	521.80	516.17	516.53	517.88	515.81	515.64	513.93	511.39	515.79
MW87	563.73	1418897.8801	454811.5722	531.42	530.23	523.22	522.97	521.81	519.08	--	519.33	519.77	517.57	518.30	517.86	516.55	513.03	517.55
MW88	563.87	1418895.4260	454805.8361	531.47	530.22	523.25	522.98	523.84 ⁽⁶⁾	519.29	--	519.33	519.80	517.51	518.32	517.87	516.67	513.05	517.59
MW89	563.66	1418892.2774	454799.2978	531.48	530.14	523.23	522.89	521.77	519.09	520.91	519.35	519.80	517.53	518.33	517.85	516.66	513.02	517.58
MW90	548.30	1417852.9370	453498.0785	--	530.05	522.57	521.88	520.84	517.84 ⁽⁶⁾	520.54	518.04	518.38	516.00	516.40	516.12	514.90	511.59	515.93
MW91	548.13	1417853.8304	453493.8406	530.97	529.97	522.69	522.02	521.03	520.15	520.79	518.37	518.70	516.31	517.01	516.51	515.31	511.95	516.28
MW92	555.20 (12)	1418154.2564	455286.0411	--	534.97	534.51	534.56	534.64	533.96	--	535.06	534.96	532.24	533.75	534.66	533.83	533.79	533.70
MW93	555.18 (12)	1418151.3022	455289.3712	537.53	534.95	534.53	534.58	534.72	533.97	--	535.15	535.08	532.64	533.78	534.61	533.62	533.51	533.41
MW94	563.67	1419192.7702	454009.5643	531.67	530.15	520.76	519.70	518.67	515.49	--	515.27	515.77	513.59	514.26	513.28	512.04	508.76 ⁽⁶⁾	513.46
MW95	563.66	1419189.4579	454003.4909	531.66	530.13	520.62	519.60	518.56	515.47	518.17	516.17	515.65	513.45	514.24	513.11	511.87	512.26	513.35
MW96	556.58	1417939.8020	451615.9755	529.98	526.49	525.77	525.84	525.68	524.88	525.49	525.68	525.68	523.81	524.54	525.56	524.81	520.49	524.64
MW97	556.89	1417947.0934	451613.7959	528.89	526.52	525.71	525.80	525.66	524.86	527.09	525.91	525.68	523.78	524.57	525.53	524.78	520.46	524.64
MW98	549.52	1416999.7205	452570.0807	--	526.07	525.29	525.41	525.26	524.45	525.61	525.44	525.24	523.17	524.10	525.05	523.31	524.16	524.29
MW99	549.67	1417011.6975	452569.0427	527.67	526.00	525.25	525.41	525.23	525.13	525.61	525.43	525.24	523.13	524.04	525.15	524.28	524.67	524.25
MW100	548.30	1417967.7658	454028.9092	531.51	530.31	522.71	521.99	520.96	517.96	520.65	518.13	518.43	516.10	516.86	516.92	514.99	515.56	516.06
MW101	559.94	1418336.8420	452648.6332	528.25	526.06	525.26	525.28	524.94	523.81	525.08	522.68	524.50	522.46	523.30	524.01	523.24	519.04 ⁽⁶⁾	523.32
MW102	551.79	1417313.8940	451767.6687	527.48	526.18	525.47	525.59	525.43	524.67	523.49	525.69	525.48	523.54	524.39	525.15	524.61	524.12	524.49
MW103	551.77	1417308.4888	451768.8439	529.65	526.15	525.43	525.57	525.43	524.61	521.23	525.68	525.41	523.53	524.38	525.14	524.69	520.29 ⁽⁶⁾	524.48
MW104	551.82	1416985.0144	453127.6555	--	526.11	525.23	525.35	525.17	524.33	525.42	525.28	525.08	522.99	523.94	524.86	524.14	524.02	524.14
MW105	551.49	1416981.3948	453120.2389	--	525.71	525.12	525.30	525.24	524.50	524.99	525.36	525.24	522.91	523.98	525.05	524.40	524.32	524.42
MW106	550.57	1418104.0208	454297.2238	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PZ-1S	580.04	1419848.2139	455927.1842	--	537.66	536.58	536.63	536.47	535.91	--	537.23	537.13	--	--	--	--	--	534.73
PZ-2	563.03	1419605.5696	454971.9667	529.11	529.32	521.30	521.83	520.29	513.00	--	518.87	519.83	518.12	518.11	517.92	516.54	513.24	517.74
PZ-3	563.39	1419395.4461	454537.0942	529.18	528.47	520.39	520.79	519.02	516.59	--	516.11	516.70	514.05	515.37	514.91	513.61	510.20	514.93
PZ-4	563.57	1419071.4693	453931.6487	531.23	--	519.12	519.08	516.64	514.87	--	513.16	513.71	511.67	512.54	511.09	510.06	510.16	513.04
PZ-5	564.57	1419046.4677	453881.6921	531.32	530.35	519.64	518.22	517.52	515.10	--	514.12	514.52	512.44	513.80	511.83	513.51	507.54	512.26
PZ-6	562.52	1418887.7325	453525.3324	531.43	530.34	520.24	519.37	517.95	514.65	--	514.62	515.01	512.33	513.31	512.13	510.98	511.44	512.33
PZ-7S	562.63	1418936.5916	453588.2321	531.71	531.30	520.73	519.86	518.50	515.07	--	515.10	515.49	513.21	513.83	513.08	512.88	512.01	512.87

TABLE 21
HYDRAULIC MONITORING DATA - LOWER AQUIFER
PRISTINE, INC. SITE
READING, OHIO

Monitoring Well Location	Top of Casing Elevation (feet AMSL) ⁽¹³⁾	Coordinates ⁽¹³⁾		Water Level Elevations														
		X Easting	Y Northing	4/10/2001 (ft. AMSL)	7/23/2001 (ft. AMSL)	8/28/2001 (ft. AMSL)	11/30/2001 (ft. AMSL)	1/30/2002 (ft. AMSL)	5/1/2002 (ft. AMSL)	7/8/2002 (ft. AMSL)	10/22/2002 (ft. AMSL)	2/7/2003 (ft. AMSL)	4/9/2003 (ft. AMSL)	7/3/2003 (ft. AMSL)	12/9/2003 (ft. AMSL)	3/10/2004 (ft. AMSL)	5/27/2004 (ft. AMSL)	8/3/2004 (ft. AMSL)
MW68	581.31	1419954.6239	455942.8361	535.59	536.57	535.64	536.33	537.00	538.51	537.69	535.59	537.08	537.69	537.83	537.73	538.16	536.91	
MW69	580.55	1419956.6634	455933.9109	535.74	537.02	534.76	536.44	537.11	539.01	536.88	535.74	537.21	537.98	537.83	537.99	537.93	538.36	537.08
MW70	580.57	1419959.1221	455924.7644	534.84	536.04	534.59	535.23	535.86	538.11	536.81	534.50	536.07	537.07	536.76	536.90	536.81	537.26	536.05
MW71	563.23 (11)	1419961.7080	456300.6206	537.57	538.69	537.84	538.50	539.10	540.44	539.73	537.71	538.99	539.53	539.54	539.61	539.72	539.94	538.74
MW72	563.21 (11)	1419961.8587	456510.1378	537.39	538.77	537.69	538.41	539.14	540.44	539.66	537.56	538.88	539.45	539.46	539.56	539.59	539.95	538.66
MW73	562.87 (11)	1419959.0170	456521.0050	537.42	538.68	537.70	538.43	539.14	540.47	539.68	537.61	538.93	539.49	539.40	539.68	539.57	539.94	538.68
MW74	568.12	1419754.8514	456444.5891	536.94	537.51	538.22	537.91	538.62	539.96	539.12	537.12	538.42	538.91	538.92	539.10	539.06	539.41	538.19
MW75	569.03	1419776.5511	456447.0656	536.99	539.00	537.26	537.96	538.67	540.03	539.21	537.17	538.47	538.98	538.97	539.11	539.12	539.45	538.24
MW76	568.24	1419767.1667	456444.6188	537.01	537.42	537.29	537.98	538.69	540.04	539.24	537.20	538.50	538.99	538.99	539.18	539.13	539.50	538.28
MW77	560.81	1419623.4240	455941.3092	535.75	536.61	535.78	536.44	537.11	538.54	537.81	535.78	537.07	537.62	537.62	537.80	537.69	538.04	536.85
MW78	560.64	1419614.2481	455926.0986	535.72	536.56	535.73	536.39	537.07	538.53	537.79	535.73	537.04	537.57	537.57	537.74	537.65	537.98	536.86
MW79	560.68	1419615.9374	455935.1443	535.77	536.62	535.73	536.44	537.12	538.57	537.85	535.77	537.08	537.63	537.63	537.78	537.70	538.04	536.85
MW80	580.18	1419851.4568	456220.2596	536.58	537.73	536.81	536.46	538.20	539.62	538.76	536.70	538.03	538.57	538.58	538.75	538.71	539.14	537.86
MW81	580.26	1419853.0872	455949.0002	535.21	536.28	535.06	535.75	536.46	538.36	537.08	534.99	536.59	537.45	537.19	537.43	537.26	537.50	536.42
MW82	582.84	1420047.0368	455912.3388	536.21	537.74	536.05	537.02	537.83	539.37	538.57	536.32	537.69	538.55	538.36	538.53	538.50	NA ⁽⁷⁾	537.63
MW83	578.81	1419905.8747	455729.8847	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW84	579.29	1419902.6709	455735.7995	535.02	535.88	534.88	535.67	536.29	537.97	537.55	535.03	536.10	537.23	537.16	537.73	537.21	537.44	536.11 ⁽⁸⁾
MW85	579.24	1419897.4775	455735.9602	534.65	535.49	534.50	535.25	535.88	537.56	537.25	534.68	536.34	536.91	536.85	537.44	536.92	537.15	535.39 ⁽⁸⁾
MW86	563.87	1419671.8720	454965.7471	518.86	515.86	518.70	515.62	514.76	520.85	519.36	515.28	516.26	519.65	518.63	517.82	517.54	516.82	515.20 ⁽⁹⁾
MW87	563.73	1418897.8801	454811.5722	519.03	517.95	518.86	517.89	517.22	520.92	521.84	518.08	518.95	519.98	520.91	521.01	520.14	519.82	518.26 ⁽⁸⁾
MW88	563.87	1418895.4260	454805.8361	519.06	518.20	519.10	517.91	517.25	520.95	521.81	518.09	518.98	519.97	520.92	521.26	520.16	519.80	518.44 ⁽⁸⁾
MW89	563.66	1418892.2774	454799.2978	519.05	518.09	518.91	517.92	517.26	520.92	521.78	518.04	518.97	519.96	520.92	521.11	520.13	519.78	518.44 ⁽⁸⁾
MW90	548.30	1417852.9370	453498.0785	517.73	516.75	515.27	516.70	515.80	519.16	519.92	516.40	517.40	517.85	519.38	519.46	518.63	518.37	518.01
MW91	548.13	1417853.8304	453493.8406	518.00	517.13	515.64	517.04	516.14	519.44	520.18	516.63	517.67	518.11	519.54	519.65	518.83	518.58	518.21
MW92	555.20 (12)	1418154.2564	455286.0411	533.77	534.28	533.55	536.20	535.24	536.18	535.66	533.72	535.14	535.40	535.52	535.77	535.67	534.07 ⁽⁸⁾	534.59
MW93	555.18 (12)	1418151.3022	455289.3712	533.58	533.97	533.60	536.04	534.94	536.71	536.30	533.75	535.18	535.43	535.68	535.83	535.70	536.69 ⁽⁸⁾	534.91
MW94	563.67	1419192.7702	454009.5643	515.83	514.07	513.15	513.87	512.90	517.11	518.09	514.23	515.36	515.72	517.53	517.77	516.80	516.30	515.91
MW95	563.66	1419189.4579	454003.4909	515.69	513.95	513.04	513.72	512.77	517.01	517.92	514.07	515.14	515.61	517.41	517.46	516.66	516.36	515.78
MW96	556.58	1419799.8020	451615.9755	524.79	526.22	525.61	525.48	525.39	526.96	526.85	524.82	525.76	526.31	526.74	526.83	526.54	526.88	526.02
MW97	556.89	1417947.0934	451613.7959	525.07	526.86	525.57	525.47	526.08	526.92	526.84	524.79	525.74	526.28	526.73	526.83	526.51	526.85	525.99
MW98	549.52	1416999.7205	452570.0807	524.66	525.79	525.03	525.05	525.33	526.52	526.45	524.36	525.41	525.94	526.37	526.52	526.20	526.50	525.57
MW99	549.67	1417011.6975	452569.0427	524.62	525.73	524.99	525.03	525.31	526.48	526.41	524.42	525.38	525.91	526.33	526.51	526.18	526.52	525.56
MW100	548.30	1417967.7658	454028.9092	517.90	516.78	515.33	516.74	515.85	519.38	520.17	516.53	517.60	518.04	519.61	519.70	518.83	518.52	518.11
MW101	559.94	1418336.8420	452648.6332	523.88	524.86	523.93	524.12	524.21	525.74	525.92	523.47	524.48	NA ⁽¹⁾	525.64	525.74 ⁽⁸⁾	525.36	525.61	524.78
MW102	551.79	1417313.8940	451767.6687	524.79	526.27	525.35	525.29	525.57	526.74	526.62	524.61	525.57	526.12	NA ⁽⁴⁾	526.68	526.35	526.68	525.81
MW103	551.77	1417308.4888	451768.8439	524.78	526.26	525.33	525.27	525.55	526.72	526.61	524.59	525.55	NA ⁽⁴⁾	NA ⁽⁴⁾	526.66	526.34	526.48	525.80
MW104	551.82	1416985.0144	453127.6555	524.54	525.50	524.81	524.89	525.16	526.36	526.31	524.19	525.29	525.81	526.25	526.41	526.11	526.40	525.42
MW105	551.49	1416981.3948	453120.2389	524.76	525.27	524.91	525.09	525.45	526.50	526.49	524.31	525.56	526.07	526.42	526.68	526.42	526.66	525.53
MW106	550.57	1418104.0208	454297.2238	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
PZ-15	580.04	1419848.2139	455927.1842	534.72	536.65	534.68	535.21	535.89	538.42	536.61	534.55	536.15	538.21	NA	537.05	537.02	537.29	NA
PZ-2	563.03	1419605.5696	454971.9667	518.90	517.96	516.52	517.85	515.13	521.12	521.75	517.89	518.83	519.57	521.16	520.40	520.11	519.82	NA
PZ-3	563.39	1419395.4461	454537.0942	516.88	516.09	513.72	514.94	514.16	518.69	519.82	515.89	516.49	517.73	518.79	518.29	518.27	517.65	NA
PZ-4	563.57	1419071.4693	453931.6487	buried	buried	510.61	511.49	buried	buried	516.00	512.28	512.39	513.78	515.54	515.07	514.71	517.52	NA
PZ-5	564.57	1419046.4677	453881.6921	515.62	512.91	512.67	513.56	511.60	516.07	516.95	513.35	514.24	514.69	516.49	516.06	515.79	516.22	NA
PZ-6	562.52	1418887.7325	453525.3324	514.83	513.17	511.63	513.25	512.09	516.25	517.02	512.81	514.32	514.58	516.52	516.11	515.80	516.64	NA
PZ-7S	562.63	1418936.5916	453588.2321	515.21	513.63	512.69	513.63	512.54	516.56	517.51	513.78	514.83	515.22	517.18	516.72	516.35	515.92	NA

TABLE 2.1
HYDRAULIC MONITORING DATA - LOWER AQUIFER
PRISTINE, INC. SITE
READING, OHIO

Monitoring Well Location	Top of Casing Elevation (feet AMSL) ⁽¹³⁾	Coordinates ⁽¹³⁾		Water Level Elevations													
		X Easting	Y Northing	11/18/2004 (ft. AMSL)	2/8/2005 (ft. AMSL)	6/15/2005 (ft. AMSL)	7/7/2005 (ft. AMSL)	11/1/2005 (ft. AMSL)	1/11/2006 (ft. AMSL)	3/7/2006 (ft. AMSL)	4/26/2006 (ft. AMSL)	6/6/2006 (ft. AMSL)	7/17/2006 (ft. AMSL)	10/18/2006 (ft. AMSL)	1/8/2007 (ft. AMSL)	4/11/2007 (ft. AMSL)	7/17/2007 (ft. AMSL)
MW68	581.31	1419954.6239	455942.8361	536.15	539.21	536.10	534.67	536.63	535.59	535.93	538.81	538.32	537.70	537.81	538.93	539.78	537.88
MW69	580.55	1419956.6634	455933.9109	536.31	539.3	536.30	534.89	536.69	535.73	536.05	538.41	538.54	537.82	537.98	539.07	539.83	538.13
MW70	580.57	1419959.1221	455924.7644	535.19	538.55	535.27	533.97	536.04	534.66	535.05	538.35	537.95	537.26	537.43	538.60	539.40	537.64
MW71	563.23 (11)	1419961.7080	456530.6206	538.09	540.42	537.65	536.19	537.68	537.46	537.94	540.23	539.91	539.27	539.51	540.50	541.36	539.42
MW72	563.21 (11)	1419961.8587	456510.1378	538.07	540.41	537.44	536.07	NA ⁽¹⁰⁾	NA ⁽¹⁰⁾	537.84	540.20	539.80	539.19	539.31	540.45	541.34	539.29
MW73	562.87 (11)	1419959.0170	456521.0050	538.11	540.44	537.46	536.09	537.64	537.42	537.83	540.17	539.77	539.16	539.02	540.44	541.00	539.29
MW74	568.12	1419754.8514	456444.5891	537.54	539.92	536.97	535.64	537.25	536.90	537.33	539.71	539.31	538.72	538.93	539.95	540.72	538.87
MW75	569.03	1419776.5511	456447.0656	537.59	539.98	537.01	535.68	537.30	536.96	537.39	539.74	539.37	538.77	539.00	540.01	540.77	538.92
MW76	568.24	1419767.1667	456444.6188	537.61	539.99	537.04	535.73	537.31	536.98	537.41	539.79	539.39	538.80	539.02	540.03	540.78	538.94
MW77	560.81	1419623.4240	455941.3092	536.17	538.63	536.28	534.88	536.15	535.53	535.92	538.58	538.29	537.69	537.83	538.85	539.67	537.85
MW78	560.64	1419614.2481	455926.0986	536.07	538.64	536.15	534.85	536.12	535.48	535.90	538.53	538.25	537.66	537.83	538.83	539.62	537.82
MW79	560.68	1419615.9374	455935.1443	536.17	538.63	536.19	534.88	536.16	535.53	535.92	538.57	538.29	537.70	537.82	538.88	539.65	537.86
MW80	580.18	1419851.4568	456220.2596	537.14	539.64	536.88	535.52	536.99	536.56	536.97	539.48	539.08	538.77	538.67	539.68	540.45	538.62
MW81	580.26	1419853.0872	455949.0002	535.62	539.11	536.63	534.21	536.51	535.01	535.39	538.25	537.89	537.14	537.28	538.37	539.34	537.47
MW82	582.84	1420047.0368	455912.3388	536.83	539.58	536.89	535.40	536.84	536.35	536.72	539.45	539.04	538.53	538.48	539.59	540.25	538.55
MW83	578.81	1419905.8747	455729.8847	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MW84	579.29	1419902.6709	455735.7995	535.65	538.29	535.85	534.29	535.83	535.14	535.32	538.84	538.35	537.69	537.70	538.87	539.79	537.82
MW85	579.24	1419897.4775	455735.9602	535.39	538.04	535.63	534.07	535.63	534.89	535.05	538.48	538.24	537.84	537.59	538.73	539.63	537.70
MW86	563.87	1419671.8720	454965.7471	514.69	521.97	515.87	513.26	521.62	512.04	511.91	528.86	529.28	528.57	528.50	529.55	530.72	528.97
MW87	563.73	1418897.8801	454811.5722	517.88	520.96	519.88	517.62	520.36	517.59	517.12	528.54	528.92	528.20	528.11	529.17	530.37	528.66
MW88	563.87	1418895.4260	454805.8361	517.92	520.95	519.89	517.66	520.40	517.62	517.15	528.56	528.96	528.32	528.15	529.20	530.38	528.68
MW89	563.66	1418892.2774	454799.2978	517.88	520.88	519.87	517.62	520.27	517.60	517.15	528.54	528.92	528.19	528.10	529.15	530.38	528.65
MW90	548.30	1417852.9370	453498.0785	516.24	518.53	518.35	516.32	517.77	516.00	515.58	526.99	527.43	526.75	526.65	527.63	529.48	527.30
MW91	548.13	1417853.8304	453493.8406	516.48	518.80	518.79	516.61	517.86	516.32	515.84	526.99	527.43	526.77	526.66	527.69	529.41	527.30
MW92	555.20 (12)	1418154.2564	455286.0411	534.13	536.23	534.75	526.44	533.88	533.24	533.79	536.14	535.98	535.37	535.49	536.49	--	--
MW93	555.18 (12)	1418151.3022	455289.3712	534.11	536.08	534.88	526.59	533.93	533.27	533.85	536.41	536.06	535.41	535.56	536.51	--	--
MW94	563.67	1419192.7702	454009.5643	513.98	516.28	516.35	514.14	516.15	514.02	513.44	527.09	527.62	526.85	526.80	527.90	528.75	527.46
MW95	563.66	1419189.4579	454003.4909	513.86	516.19	516.64	514.01	516.01	513.91	513.31	527.03	527.57	526.82	526.73	527.86	528.62	527.41
MW96	556.58	1417939.8020	451615.9755	525.29	527.07	526.54	525.79	524.97	524.88	524.72	NA ⁽⁹⁾	526.98	526.61	526.50	527.17	528.43	526.49
MW97	556.89	1417947.0934	451613.7959	525.25	527.11	526.54	525.81	524.96	524.89	524.74	NA ⁽⁹⁾	526.98	526.61	526.50	527.17	528.42	526.49
MW98	549.52	1416999.7205	452570.0807	524.89	526.71	526.24	525.43	524.62	524.55	524.39	526.72	526.71	526.32	526.23	526.95	528.22	526.17
MW99	549.67	1417011.6975	452569.0427	524.85	526.72	526.20	525.38	524.57	524.53	524.34	526.70	526.63	526.30	526.21	526.92	528.18	526.15
MW100	548.30	1417967.7658	454028.9092	516.39	518.83	518.67	516.39	518.10	516.26	515.74	527.42	527.86	527.18	527.15	528.13	529.80	527.71
MW101	559.94	1418336.8420	452648.6332	523.86	525.79	525.37	524.34	NA ⁽¹⁾	523.55	523.37	526.98	527.01	526.59	526.49	527.23	528.54	526.53
MW102	551.79	1417313.8940	451767.6687	NA ⁽⁴⁾	526.92	526.37	525.64	524.79	524.73	524.57	526.79	526.74	526.39	526.29	526.98	528.18	526.25
MW103	551.77	1417308.4888	451768.8439	NA ⁽⁴⁾	526.89	526.36	525.62	524.78	524.72	524.56	526.77	526.74	526.37	526.28	526.97	528.16	526.23
MW104	551.82	1416985.0144	453127.6555	524.72	526.59	526.05	525.22	524.44	524.36	524.23	526.71	526.70	526.30	526.19	526.94	528.21	526.16
MW105	551.49	1416981.3948	453120.2389	524.91	526.84	526.28	525.28	524.56	524.56	524.50	526.54	526.59	526.19	526.09	526.90	528.16	525.99
MW106	550.57	1418104.0208	454297.2238	--	--	--	--	--	532.36	532.86	534.70	535.30	534.66	534.77	535.77	536.82	534.82
PZ-1S	580.04	1419848.2139	455927.1842	535.27	539.14	535.19	533.74	536.54	534.48	534.97	538.00	537.40	536.71	536.91	537.93	538.70	537.23
PZ-2	563.03	1419605.5696	454971.9667	517.71	522.13	519.38	517.07	521.71	516.73	516.43	528.97	529.41	528.67	528.59	529.64	530.81	529.07
PZ-3	563.39	1419395.4461	454537.0942	515.75	520.14	517.84	515.53	519.99	515.62	515.03	527.07	527.65	526.95	526.78	527.90	529.14	527.25
PZ-4	563.57	1419071.4693	453931.6487	511.35	513.64	514.73	512.33	514.17	512.09	511.41	526.95	527.49	526.74	526.65	527.80	527.20	527.34
PZ-5	564.57	1419046.4677	453881.6921	512.84	515.05	515.59	513.16	515.01	513.05	512.30	526.87	527.43	526.66	526.60	527.76	528.10	527.30
PZ-6	562.52	1418887.7325	453525.3324	513.48	515.38	515.49	513.04	514.68	513.34	512.92	526.13	527.12	525.85	525.85	527.45	529.12	526.52
PZ-7S	562.63	1418936.5916	453588.2321	513.75	515.74	515.05	513.63	515.03	513.44	513.04	526.22	526.75	525.92	526.00	527.23	529.09	526.78

TABLE 2.1
HYDRAULIC MONITORING DATA - LOWER AQUIFER
PRISTINE, INC. SITE
READING, OHIO

Monitoring Well Location	Top of Casing Elevation (feet AMSL) ⁽¹³⁾	Coordinates ⁽¹³⁾		Water Level Elevations													
		X Easting	Y Northing	8/8/2007 (ft. AMSL)	11/27-29/2007 (ft. AMSL)	12/28/2007 (ft. AMSL)	3/17/2008 (ft. AMSL)	7/29/2008 (ft. AMSL)	12/12/2008 (ft. AMSL)	2/12/2009 (ft. AMSL)	6/3/2009 (ft. AMSL)	7/6/2009 (ft. AMSL)	10/2/2009 (ft. AMSL)	12/29/2009 (ft. AMSL)	2/5/2010 (ft. AMSL)	5/11/2010 (ft. AMSL)	7/12/2010 (ft. AMSL)
MW68	581.31	1419954.6239	455942.8361	--	--	538.76	539.57	538.91	537.35	538.12	538.47	538.59	538.27	538.22	538.59	539.16	539.26
MW69	580.55	1419956.6634	455933.9109	--	--	538.99	539.70	539.07	537.54	538.32	538.81	538.73	538.71	538.33	538.83	539.36	539.40
MW70	580.57	1419959.1221	455924.7644	--	--	538.48	539.35	538.55	537.07	537.90	538.36	538.42	538.20	538.08	538.50	539.12	539.18
MW71	563.23 (11)	1419961.7080	456530.6206	--	--	540.36	541.37	540.89	539.23	540.07	540.43	540.31	539.96	539.52	540.28	540.87	540.98
MW72	563.21 (11)	1419961.8587	456510.1378	--	--	540.22	541.21	540.68	539.06	539.88	540.20	540.13	539.99	539.80	540.47	540.86	540.94
MW73	562.87 (11)	1419959.0170	456521.0050	--	--	540.24	541.19	540.60	539.07	539.82	540.23	540.19	539.97	539.81	540.44	540.84	540.91
MW74	568.12	1419754.8514	456444.5891	--	--	539.75	540.79	540.17	538.65	539.38	539.80	539.87	539.59	539.36	540.04	540.40	540.57
MW75	569.03	1419776.5511	456447.0656	--	--	539.81	540.85	540.24	538.70	539.45	539.86	539.84	539.63	539.40	540.09	540.45	540.51
MW76	568.24	1419767.1667	456444.6188	--	--	539.83	540.84	540.25	538.72	539.47	539.87	539.85	539.66	539.43	540.11	540.48	540.54
MW77	560.81	1419623.4240	455941.3092	--	--	538.71	539.64	539.18	537.78	538.32	538.77	538.76	538.56	538.34	539.03	539.41	539.47
MW78	560.64	1419614.2481	455926.0986	--	--	538.73	539.59	539.15	537.46	538.30	538.76	538.74	538.53	538.31	538.99	539.40	539.44
MW79	560.68	1419615.9374	455935.1443	--	--	538.72	539.63	539.17	537.64	538.33	538.78	538.77	538.57	538.35	538.71	539.43	539.47
MW80	580.18	1419851.4568	456220.2596	--	--	539.56	540.48	539.90	538.33	539.11	539.64	539.53	539.31	539.08	539.85	540.16	540.17
MW81	580.26	1419853.0872	455949.0002	--	--	538.19	538.94	538.31	535.74	537.41	538.05	537.86	537.48	537.81	537.66	538.64	538.65
MW82	582.84	1420047.0368	455912.3388	--	--	539.54	540.43	539.71	538.04	538.84	539.36	539.26	539.15	538.90	539.32	539.98	539.99
MW83	578.81	1419905.8747	455729.8847	--	537.35	538.88	539.71	539.20	537.52	538.28	538.86	538.80	--	538.36	539.15	539.55	539.53
MW84	579.29	1419902.6709	455735.7995	--	--	538.76	539.59	539.06	537.53	538.20	538.75	538.70	--	538.32	538.97	539.47	539.47
MW85	579.24	1419897.4775	455735.9602	--	--	538.66	539.50	538.99	537.40	538.14	538.72	538.67	--	538.23	538.99	539.44	539.39
MW86	563.87	1419671.8720	454965.7471	--	--	530.40	530.04	530.85	530.18	530.60	531.72	531.25	531.04	530.73	531.59	532.75	532.18
MW87	563.73	1418897.8801	454811.5722	--	528.62	529.99	529.62	530.46	529.49	529.90	531.02	530.63	--	530.04	530.91	532.06	531.54
MW88	563.87	1418895.4260	454805.8361	--	528.62	530.00	529.64	530.50	529.56	529.92	531.06	530.65	--	530.07	530.93	532.10	531.54
MW89	563.66	1418892.2774	454799.2978	--	528.61	529.96	529.60	530.42	528.46	529.81	530.96	530.58	--	530.00	530.83	532.02	531.47
MW90	548.30	1417852.9370	453498.0785	--	527.10	528.35	528.09	528.96	527.47	527.69	529.10	529.08	528.31	529.45 (6)	528.76	531.04 (6)	530.46 (6)
MW91	548.13	1417853.8304	453493.8406	--	527.15	528.43	528.02	528.91	527.48	527.81	529.03	528.57	528.31	528.04	528.87	530.03	529.50
MW92	555.20 (12)	1418154.2564	455286.0411	535.38	535.03	--	537.15	537.04	535.39	536.19	536.24	536.60	536.48	536.19	536.95	537.28	537.35
MW93	555.18 (12)	1418151.3022	455289.3712	534.87	534.86	--	537.08	537.07	535.53	536.11	536.61	536.60	536.50	536.21	536.96	537.31	537.36
MW94	563.67	1419192.7702	454009.5643	--	--	528.77	528.24	529.21	527.92	528.26	529.56	529.03	528.76	528.49	529.32	530.65	530.32
MW95	563.66	1419189.4579	454003.4909	--	527.09	528.72	528.17	529.14	527.66	527.86	529.44	528.95	528.46	528.41	529.27	530.57	529.92
MW96	556.58	1417939.8020	451615.9755	--	--	526.96	527.98	527.73	526.23	526.48	527.19	527.34	527.20	526.73	527.55	528.01	528.17
MW97	556.89	1417947.0934	451613.7959	--	--	526.96	527.99	527.72	526.26	526.66	527.22	527.36	527.21	526.74	527.57	527.99	528.15
MW98	549.52	1416999.7205	452570.0807	--	--	526.65	527.62	527.51	526.02	526.43	526.98	527.08	526.90	526.54	527.37	527.81	527.90
MW99	549.67	1417011.6975	452569.0427	--	--	526.62	527.54	527.38	525.98	526.38	526.95	527.05	526.88	526.50	527.35	527.78	527.88
MW100	548.30	1417967.7658	454028.9092	--	527.56	528.97	529.23	529.40	528.05	528.46	529.88	529.17	528.92	528.65	529.46	530.66	530.12
MW101	559.94	1418336.8420	452648.6332	--	526.03	527.06	528.03	527.87	526.39	526.52	527.37	527.43	527.29	526.84	527.69	528.24	528.27
MW102	551.79	1417313.8940	451767.6687	--	--	526.73	527.67	527.51	526.06	526.44	526.98	527.11	526.95	526.51	527.30	527.81	527.94
MW103	551.77	1417308.4888	451768.8439	--	--	526.73	527.71	527.48	526.03	526.44	526.97	527.09	526.96	526.52	527.32	527.79	527.92
MW104	551.82	1416985.0144	453127.6555	--	--	526.62	527.57	527.48	526.05	526.44	527.00	527.09	526.94	526.58	527.41	527.86	527.92
MW105	551.49	1416981.3948	453120.2389	--	--	526.31	527.34	527.44	526.00	526.36	526.90	526.98	526.83	526.53	527.38	527.78	527.86
MW106	550.57	1418104.0208	454297.2238	--	534.26	535.27	536.67	536.21	534.71	535.28	535.80	535.81	535.76	535.41	536.27	536.53	536.55
PZ-1S	580.04	1419848.2139	455927.1842	--	--	537.73	538.26	537.55	535.98	536.69	537.17	537.04	537.32	538.64	537.35	537.55	537.64
PZ-2	563.03	1419605.5696	454971.9667	--	--	530.46	530.12	--	530.21	529.63	531.72	531.28	531.05	530.77	531.52	532.75	532.21
PZ-3	563.39	1419395.4461	454537.0942	--	--	529.07	528.63	529.47	529.48	529.85	531.01	530.54	530.32	530.03	530.87	532.11	531.50
PZ-4	563.57	1419071.4693	453931.6487	--	--	528.64	528.11	529.09	527.69	528.01	529.33	528.83	528.53	528.25	529.12	530.41	529.76
PZ-5	564.57	1419046.4677	453881.6921	--	--	528.58	528.02	528.92	527.55	527.93	529.22	528.72	528.40	528.14	529.00	530.28	529.63
PZ-6	562.52	1418887.7325	453525.3324	--	--	528.20	527.72	528.17	526.40	527.22	528.12	527.63	527.28	527.02	527.86	529.13	528.50
PZ-7S	562.63	1418936.5916	453588.2321	--	--	527.99	527.40	528.38	526.86	527.34	528.52	527.88	527.40	527.63	527.86	529.35	528.82

TABLE 2.1
HYDRAULIC MONITORING DATA - LOWER AQUIFER
PRISTINE, INC. SITE
READING, OHIO

Notes:

AMSL. Above mean sea level.

- (1) Water levels were measured, beginning January 15, for Round 10 of the lower aquifer monitoring.
- (2) Average cluster elevations of last set of groundwater elevations.
- (3) Well lid was altered and could not be opened.
- (4) Well is located in a parking area. A vehicle was parked over the well and a water level could not be measured.
- (5) Well could not be located. Buried under snow.
- (6) Anomalous measurement.
- (7) Well could not be located.
- (8) Water level measurement recorded on 8/19/04.
- (9) Water level measurement recorded on 8/18/04.
- (10) Well damaged and water level could not be measured.
- (11) Measuring point changed: MW71 - October 2006; MW72 - March 2006 and October 2006; MW73 - October 2006.
- (12) Measuring point changed: MW92 - November 2, 2007; MW93 - November 2, 2007.
- (13) Eastings and Northings in Ohio State Plane-NAD83-Ohio South-Foot. Elevations in NAVD88.

TABLE 2.2

SUMMARY OF LOWER AQUIFER MONITORING WELL GROUNDWATER SAMPLING AND ANALYSES

	MW 68	MW 69	MW 70	MW 71	MW 72	MW 73	MW 74	MW 75	MW 76	MW 77	MW 78	MW 79	MW 80	MW 81	MW 82	MW 83	MW 84	MW 85	MW 86	MW 87	MW 88	MW 89	MW 90	MW 91	MW 92	MW 93	MW 94	MW 95	MW 96	MW 97	MW 98	MW 99	MW 100	MW 101	MW 102	MW 103	MW 104	MW 105	MW 106															
<i>Volatile Organic Compounds (VOCs)</i>																																																						
R1	X	X	X	X	X	X	X	X	X	X	X	X	X	X																																								
R2										X	X	X			X	X	X	X																																				
R3																			2X	X	X	X																																
R4																X	X	X	X	X	X	X	X	X	3X	X	X	X	X																									
R5																							X	X																														
R6																							X	X						X	X	X	X																					
R7			X			X			X			X						X	X	X	X	X	X	X	X	X	X	X	X	X																								
R8	2X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	2X																													
R9	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X									
R10														X					X			X	X	X							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X									
R11																			X			X	X	X							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X								
R12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	3X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X								
R13																		X			X	X	X						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X								
R14	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							
R15	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						
R16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	2X	X	3X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	2X	X	X	X							
R17	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						
R18	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	2X	2X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						
R19	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					
R20	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
R21																							X	X	X	X																								X				
R22																							X	X	X	X																									X			
R23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
R24																	X				X	X	X	X	X	X	X	X																								X		
R25																				X	X	X	X	X	X	X	X																										X	
R26	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
R27																					X	X	X	X	X	X	X																										X	
R28																					X	X	X	X	X	X	X																										X	
R29	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
R30																					X	X	X	X	X	X	X																										X	
R31																					X	X	X	X	X	X	X																											X

TABLE 2.2

SUMMARY OF LOWER AQUIFER MONITORING WELL GROUNDWATER SAMPLING AND ANALYSES

	MW 68	MW 69	MW 70	MW 71	MW 72	MW 73	MW 74	MW 75	MW 76	MW 77	MW 78	MW 79	MW 80	MW 81	MW 82	MW 83	MW 84	MW 85	MW 86	MW 87	MW 88	MW 89	MW 90	MW 91	MW 92	MW 93	MW 94	MW 95	MW 96	MW 97	MW 98	MW 99	MW 100	MW 101	MW 102	MW 103	MW 104	MW 105	MW 106							
<i>Semi-volatile Organic Compounds (SVOCs)</i>																																														
R1	X	X	X	X	X	X	X	X	X	X	X	X	X	X																																
R2										X	X	X			X	X	X	X																												
R3																																														
R4																																														
R5																								X	X																					
R6																								X	X					X	X	X	X													
R7																			X	X	X	X	X	X	X	X	X	X	X																	
R8																							X	X																						
R9																																														
R10																																														
R11																																														
R12																																														
R13																																														
R14																																														
R15																																														
R16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			
R17																																														
R18																																														
R19																																														
R20																																														
R21																																														
R22																																														
R23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
R24																																														
R25																																														
R26																																														
R27																																														
R28																																														
R29																																														
R30																																														
R31																																														

TABLE 2.2

SUMMARY OF LOWER AQUIFER MONITORING WELL GROUNDWATER SAMPLING AND ANALYSES

	MW 68	MW 69	MW 70	MW 71	MW 72	MW 73	MW 74	MW 75	MW 76	MW 77	MW 78	MW 79	MW 80	MW 81	MW 82	MW 83	MW 84	MW 85	MW 86	MW 87	MW 88	MW 89	MW 90	MW 91	MW 92	MW 93	MW 94	MW 95	MW 96	MW 97	MW 98	MW 99	MW 100	MW 101	MW 102	MW 103	MW 104	MW 105	MW 106					
<i>General Chemistry Parameters</i>																																												
R1	X	X	X	X	X	X	X	X	X	X	X	X	X	X																														
R2										X	X	X			X	X	X	X																										
R3																																												
R4																																												
R5																																												
R6																																												
R7			X		X			X			X						X	X	X	X	X	X	X	X	X	X	X	X	X															
R8																																												
R9																																												
R10																X			X	X	X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
R11																																												
R12																																												
R13																																												
R14																																												
R15	X	X	X	X	X	X											X	X	X	X	X	X				X	X	X		X				X	X			X	X		X			
R16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
R17	X	X	X	X	X	X											X	X	X	X	X	X				X	X	X		X				X	X			X	X		X			
R18																																												
R19	X	X	X	X	X	X											X	X	X	X	X	X				X	X	X		X					X	X			X	X		X		
R20																																												
R21																																												
R22																																												
R23	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
R24																																												
R25																																												
R26																																												
R27																																												
R28																																												
R29					X																		X	X		X		X	X		X				X	X			X	X		X		
R30																																												
R31																																												

TABLE 2.2

SUMMARY OF LOWER AQUIFER GROUNDWATER SAMPLING AND ANALYSES

Notes:

R1 - Round 1 sampling (11/05/92 to 11/09/92).
 R2 - Round 2 sampling (12/03/93 to 12/07/93).
 R3 - Round 3 sampling (06/27/94 to 06/28/94).
 R4 - Round 4 sampling (10/14/94 to 10/19/94).
 R5 - Round 5 sampling (04/21/95).
 R6 - Round 6 sampling (01/08/96 to 01/09/96).
 R7 - Round 7 sampling (08/01/96 to 08/09/96).
 R8 - Round 8 sampling (09/15/97 to 10/02/97).
 R9 - Round 9 sampling (08/18/98 to 09/15/98).
 R10 - Round 10 sampling (01/15/99 to 01/25/99).
 R11 - Round 11 sampling (04/13/99 to 04/20/99).
 R12 - Round 12 sampling (07/15/99 to 08/13/99).
 R13 - Round 13 sampling (12/15/99 to 12/22/99).
 R14 - Round 14 sampling (07/27/00 to 08/25/00).
 R15 - Round 15 sampling (08/01/01 to 09/20/01).
 R16 - Round 16 sampling (06/25/02 to 07/31/02).
 R17 - Round 17 sampling (07/07/03 to 07/25/03).
 R18 - Round 18 sampling (08/04/04 to 08/23/04).
 R19 - Round 19 sampling (06/16/05 to 08/03/05).
 R20 - Round 20 sampling (07/18/06 to 08/10/06).
 R21 - Round 21 sampling (11/15/06 to 11/17/06).
 R22 - Round 22 sampling (03/02/07 to 03/06/07).
 R23 - Round 23 sampling (07/18/07 to 08/10/07).
 R24 - Round 24 sampling (11/27/07 to 11/30/07).
 R25 - Round 25 sampling (03/18/08 to 03/24/08).
 R26 - Round 26 sampling (07/30/08 to 10/10/08).
 R27 - Round 27 sampling (11/03/08 to 11/05/08).
 R28 - Round 28 sampling (03/10/09 to 03/12/09).
 R29 - Round 29 sampling (07/07/09 to 07/24/09).
 R30 - Round 30 sampling (11/11/09 to 12/03/09).
 R31 - Round 31 sampling (03/16/10 to 03/19/10).

Parameter list varies within each parameter grouping.

X - Sample collected for analysis.

2X - Two samples; additional sample collected on a different date.

3X - Three samples; investigative sample plus MS/MSD samples mistakenly analyzed as normal samples and not spiked.

E- Ethanol only.

TABLE 2.3

**SUMMARY OF ROUND 29 VOC RESULTS FOR
LOWER AQUIFER MONITORING WELLS**

<i>Chemical</i>	<i>PG ($\mu\text{g/L}$)</i>	<i>MCL ($\mu\text{g/L}$)</i>	<i>Frequency of Detection</i>	<i>Minimum Detected Concentration ($\mu\text{g/L}$)</i>	<i>Maximum Detected Concentration ($\mu\text{g/L}$)</i>
1,1,1-Trichloroethane	200	200	4/39	0.23 J	1.2
1,1,2-Trichloroethane		5	2/39	0.30 J	0.32 J
1,1-Dichloroethane			20/39	0.23 J	48
1,1-Dichloroethene	0.033	7	9/39	0.22 J	3.3
1,2-Dibromoethane (Ethylene Dibromide)		0.05	0/39	N/A	N/A
1,2-Dichlorobenzene	75	600	4/39	0.46 J	11 J
1,2-Dichloroethane	0.94	5	20/39	0.23 J	1,400
Acetone			1/39	2.4 J	2.4 J
Benzene	0.67	5	4/39	0.52 J	4.3
Chlorobenzene	488	100	3/39	0.24 J	0.51 J
Chloroethane			0/39	N/A	N/A
Chloroform (Trichloromethane)	0.19	80	6/39	0.17 J	25 J
Chloromethane (Methyl Chloride)			0/39	N/A	N/A
cis-1,2-Dichloroethene		70	32/39	0.24 J	87
Ethylbenzene	2400	700	0/39	N/A	N/A
Methylene chloride		5	0/39	N/A	N/A
Tetrachloroethene	0.88	5	5/39	0.30 J	16 J
Toluene	15000	1000	3/39	0.19 J	0.46 J
trans-1,2-Dichloroethene		100	17/39	0.19 J	4.8
Trichloroethene	2.8	5	24/39	0.37 J	23
Vinyl chloride	0.02	2	10/39	0.24 J	19
Xylene (total)		10000	0/39	N/A	N/A

Notes:

J Estimated concentration.

PG Performance goal.

MCL Maximum Contaminant Level for drinking water (Chloroform MCL is for total trihalomethanes).

Values above performance goals and/or MCLs shown in **bold font**.

TABLE 2.4

SUMMARY OF 1,2-DCA AND TOTAL VOCs CONCENTRATION REDUCTIONS
PRISTINE, INC. SITE, READING, OHIO

Well	1,2-Dichloroethane (µg/L)			Total VOCs (µg/L)		
	Previous Maximum (pre-2009)	2009 Data	Reduction (%)	Previous Maximum (pre-2009)	2009 Data	Reduction (%)
MW68	24000	1400	94.2	121300	1498	98.8
MW69	1200	0.90 J	99.9	12052	4.4	100.0
MW70	120	1.7	98.6	120	21	82.1
MW77	490	1.0 J	99.8	674	3.8	99.4
MW78	100	0.29 J	99.7	179	5.4	97.0
MW79	94 J	0.81 J	99.1	171	4.9	97.2
MW80	46	0.82 J	98.2	164	5.4	96.7
MW81	12000	2.1	100.0	71000	18	100.0
MW82	1900	1.9	99.9	2964	3.9	99.9
MW83	110	ND (1.0)	99.1	173	7.9	95.4
MW84	750	11	98.5	1212	19	98.5
MW85	1200	7.0	99.4	1527	13	99.2
MW86	40000	ND (1.0)	100.0	40420	16	100.0
MW87	4.8	13	increase	105	93	11.6
MW88	1500	13	99.1	1588	66	95.9
MW89	4900 J	8.1	99.8	5096	22	99.6
MW90	700	1.8 J	99.7	714	122	83.0
MW91	710	1.4	99.8	725	51	93.0
MW94	6.3	0.8 J	87.5	7	1	85.7
MW95	16000	27	99.8	16000	65	99.6
EW1	7700	420	94.5	27550	639	97.7
EW2	16000	2.1	100.0	16454	10	99.9
EW3	19000	120	99.4	21797	138	99.4
EW4	1400	16	98.9	1464	35	97.6
EW5	530	23	95.7	541	63	88.4

Notes:

J estimated concentration

Key



> 1000 µg/L
100 to 999 µg/L
10 to 99.9 µg/L

TABLE 2.5

VOC REMOVAL BASED ON TREATMENT SYSTEM INFLUENT

<i>Year</i>	<i>Amount of Water Pumped (gallons)</i>	<i>VOC Removed Based on Treatment System Influent (1) (lbs)</i>
1997	2,523,105	298.2
1998	58,026,658	4,636.6
1999	182,532,569	4,015.5
2000	195,581,638	2,295.8
2001	186,849,401	1,220.8
2002	182,764,503	522.4
2003	160,253,621	314.4
2004	170,774,929	243.9
2005	168,235,788	156.8
2006	91,877,605	78.9
2007	69,415,985	53.7
2008	68,213,059	59.5
2009	65,358,827	27.7
Total	1,602,407,688	13,924.2

Notes:

- 1) The treatment system influent includes lower aquifer groundwater plus groundwater from Zones A and B (~ 100 lbs of VOCs) and groundwater from lower outwash lens GW108 (~25 lbs of VOCs removed).
- 2) Other quantities: thermal treatment: ~12,800 tons of soil treated; > 1,600 lbs of VOCs from ISVE soil vapor from Zones A and B.

TABLE 3.1

**ROUND 29 ANALYTICAL RESULTS FOR LOWER AQUIFER MONITORING WELLS -
METALS AND GENERAL CHEMISTRY PARAMETERS**

<i>Sample Location:</i>		<i>MW73</i>	<i>MW90</i>	<i>MW91</i>	<i>MW93</i>	<i>MW95</i>	<i>MW96</i>
<i>Sample ID:</i>		<i>GW-071609-GL-686-MW</i>	<i>GW-071609-GL-688-MW</i>	<i>GW-071609-GL-687-MW</i>	<i>GW-071009-GL-675-MW</i>	<i>GW-071509-GL-682MW</i>	<i>GW-070709-GL-663-MW</i>
<i>Sample Date:</i>		<i>7/16/2009</i>	<i>7/16/2009</i>	<i>7/16/2009</i>	<i>7/10/2009</i>	<i>7/15/2009</i>	<i>7/7/2009</i>
<i>Parameters</i>	<i>Units</i>						
<i>Metals</i>							
Calcium	mg/L	113	141	144	134	166	167
Iron (Dissolved)	mg/L	2.0	1.3	4.9	10.3	2.3	0.86
Magnesium	mg/L	32.7	44.1	39.9	47.6	51.3	49.8
Manganese (Dissolved)	mg/L	0.23	0.26	0.59	0.71	0.39	1.6
Potassium	mg/L	6.9	10.2	ND (5.0)	ND (5.0)	8.6	6.6
Sodium	mg/L	99.0	53.0	50.6	43.8	78.3	92.1
<i>General Chemistry</i>							
Alkalinity, Bicarbonate	mg/L	130	290	330	370	330	370
Alkalinity, Carbonate	mg/L	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)
Alkalinity, Total (as CaCO ₃)	mg/L	130	290	330	370	330	370
Chloride	mg/L	181	132	127	94.9 J	153	288
Dissolved Organic Carbon (DOC)	mg/L	R	R	R	R	R	R
Nitrate (as N)	mg/L	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) UJ	ND (0.50)	ND (0.50)
Nitrite (as N)	mg/L	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) UJ	ND (0.50)	ND (0.50)
Sulfate	mg/L	262	139	178	172 J	254	168
Sulfide	mg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Total Organic Carbon (TOC)	mg/L	3	2	2	2	2	2

Notes:

- J - Estimated.
- ND - Non-detect at associated value.
- UJ - Estimated reporting limit.
- R - Rejected.

TABLE 3.1

**ROUND 29 ANALYTICAL RESULTS FOR LOWER AQUIFER MONITORING WELLS -
METALS AND GENERAL CHEMISTRY PARAMETERS**

<i>Sample Location:</i>		<i>MW96</i>	<i>MW98</i>	<i>MW101</i>	<i>MW102</i>	<i>MW104</i>
<i>Sample ID:</i>		<i>GW-070709-GL-664-MW</i>	<i>GW-072109-NZ-701-MW</i>	<i>GW-070909-GL-672-MW</i>	<i>GW-071409-GL-677-MW</i>	<i>GW-072109-NZ-702-MW</i>
<i>Sample Date:</i>		<i>7/7/2009</i>	<i>7/21/2009</i>	<i>7/9/2009</i>	<i>7/14/2009</i>	<i>7/21/2009</i>
<i>Parameters</i>	<i>Units</i>	<i>(Duplicate)</i>				
<i>Metals</i>						
Calcium	mg/L	164	167	123	124	167
Iron (Dissolved)	mg/L	0.83	0.77	0.92	0.95	1.1
Magnesium	mg/L	49.0	48.6	41.8	39.3	46.0
Manganese (Dissolved)	mg/L	1.6	1.8	0.68	0.86	0.75
Potassium	mg/L	6.5	ND (5.0)	ND (5.0)	14.2	ND (5.0)
Sodium	mg/L	90.4	63.2	115	86.8	62.4
<i>General Chemistry</i>						
Alkalinity, Bicarbonate	mg/L	370	390	340	250	400
Alkalinity, Carbonate	mg/L	ND (5.0)				
Alkalinity, Total (as CaCO ₃)	mg/L	370	410	340	250	400
Chloride	mg/L	286	203	209	161	162
Dissolved Organic Carbon (DOC)	mg/L	R	R	R	R	R
Nitrate (as N)	mg/L	ND (0.50)	0.80	ND (0.50)	0.60	ND (0.50)
Nitrite (as N)	mg/L	ND (0.50)				
Sulfate	mg/L	171	161	94.9	164	141
Sulfide	mg/L	ND (1.0)	ND (1.0)	ND (1.0)	16	46 J
Total Organic Carbon (TOC)	mg/L	1	1	1	3	2

Notes:

- J - Estimated.
- ND - Non-detect at associated value.
- UJ - Estimated reporting limit.
- R - Rejected.

TABLE 3.2

ROUND 29 ANALYTICAL RESULTS FOR LOWER AQUIFER MONITORING WELLS - VOCs

Sample Location:	MW68	MW69	MW70	MW71	MW72	MW73
Sample ID:	GW-072209-NZ-706-MW	GW-071409-GL-679-MW	GW-070909-GL-671-MW	GW-070809-GL-668-MW	GW-070909-GL-669-MW	GW-071609-GL-686-MW
Sample Date:	7/22/2009	7/14/2009	7/9/2009	7/8/2009	7/9/2009	7/16/2009
Parameters	Units					
Volatile Organic Compounds						
1,1,1-Trichloroethane	µg/L	ND (50)	0.23 J	ND (1.0)	ND (1.0)	ND (1.0)
1,1,2-Trichloroethane	µg/L	ND (50)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
1,1-Dichloroethane	µg/L	11 J	ND (1.0)	ND (1.0)	0.83 J	ND (1.0)
1,1-Dichloroethene	µg/L	ND (50)	ND (1.0)	ND (1.0)	ND (1.0)	0.53 J
1,2-Dibromoethane (Ethylene Dibromide)	µg/L	ND (50)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
1,2-Dichlorobenzene	µg/L	11 J	1.8	ND (1.0)	ND (1.0)	ND (1.0)
1,2-Dichloroethane	µg/L	1400	0.90 J	1.7	ND (1.0)	ND (1.0)
Acetone	µg/L	ND (500)	ND (10)	ND (10)	2.4 J	ND (10)
Benzene	µg/L	ND (50)	ND (1.0)	ND (1.0)	2.3	ND (1.0)
Chlorobenzene	µg/L	ND (50)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Chloroethane	µg/L	ND (50)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Chloroform (Trichloromethane)	µg/L	25 J	0.31 J	ND (1.0)	ND (1.0)	ND (1.0)
Chloromethane (Methyl Chloride)	µg/L	ND (50)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
cis-1,2-Dichloroethene	µg/L	35 J	0.35 J	0.45 J	1.4	0.30 J
Ethylbenzene	µg/L	ND (50)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Methylene chloride	µg/L	ND (50)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Tetrachloroethene	µg/L	16 J	0.30 J	ND (1.0)	ND (1.0)	ND (1.0)
Toluene	µg/L	ND (50)	ND (1.0)	0.31 J	ND (1.0)	ND (1.0)
trans-1,2-Dichloroethene	µg/L	ND (50)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Trichloroethene	µg/L	ND (50)	0.50 J	ND (1.0)	1.8	0.87 J
Vinyl chloride	µg/L	ND (50)	ND (1.0)	19	ND (1.0)	ND (1.0)
Xylene (total)	µg/L	ND (50)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)

Notes:

- J - Estimated.
- ND - Non-detect at associated value.
- U - Not present at or above the associated value.

TABLE 3.2

ROUND 29 ANALYTICAL RESULTS FOR LOWER AQUIFER MONITORING WELLS - VOCs

Sample Location:	MW74	MW75	MW76	MW77	MW78	MW79
Sample ID:	GW-070809-GL-667-MW	GW-070809-GL-665-MW	GW-070809-GL-666-MW	GW-071509-GL-684MW	GW-071509-GL-685MW	GW-070909-GL-673-MW
Sample Date:	7/8/2009	7/8/2009	7/8/2009	7/15/2009	7/15/2009	7/9/2009
Parameters	Units					
<i>Volatile Organic Compounds</i>						
1,1,1-Trichloroethane	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
1,1,2-Trichloroethane	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
1,1-Dichloroethane	µg/L	0.37 J	0.62 J	0.30 J	0.55 J	0.23 J
1,1-Dichloroethene	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
1,2-Dibromoethane (Ethylene Dibromide)	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
1,2-Dichlorobenzene	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
1,2-Dichloroethane	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	0.99 J	0.29 J
Acetone	µg/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Benzene	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Chlorobenzene	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Chloroethane	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Chloroform (Trichloromethane)	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Chloromethane (Methyl Chloride)	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
cis-1,2-Dichloroethene	µg/L	0.24 J	0.36 J	1.2	2.0	0.84 J
Ethylbenzene	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Methylene chloride	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Tetrachloroethene	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Toluene	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
trans-1,2-Dichloroethene	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	0.23 J	ND (1.0)
Trichloroethene	µg/L	0.92 J	1.2	2.5	ND (1.0)	4.9
Vinyl chloride	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Xylene (total)	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)

Notes:

- J - Estimated.
- ND - Non-detect at associated value.
- U - Not present at or above the associated value.

TABLE 3.2

ROUND 29 ANALYTICAL RESULTS FOR LOWER AQUIFER MONITORING WELLS - VOCs

Sample Location:	MW80	MW81	MW82	MW83	MW84	MW85	
Sample ID:	GW-072009-GL-698-MW	GW-072409-NZ-715-MW	GW-072309-NZ-710-MW	GW-071709-GL-694-MW	GW-071709-GL-695-MW	GW-071709-GL-692-MW	
Sample Date:	7/20/2009	7/24/2009	7/23/2009	7/17/2009	7/17/2009	7/17/2009	
Parameters	Units						
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	0.40 J	ND (1.0)	1.1
1,1,2-Trichloroethane	µg/L	ND (1.0)	ND (1.0)				
1,1-Dichloroethane	µg/L	0.68 J	ND (1.0)	ND (1.0)	0.43 J	1.1	0.62 J
1,1-Dichloroethene	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	0.22 J	ND (1.0)
1,2-Dibromoethane (Ethylene Dibromide)	µg/L	ND (1.0)	ND (1.0)				
1,2-Dichlorobenzene	µg/L	ND (1.0)	9.3	0.46 J	ND (1.0)	ND (1.0)	ND (1.0)
1,2-Dichloroethane	µg/L	0.82 J	2.1	1.9	ND (1.0)	11	7.0
Acetone	µg/L	ND (10)	ND (10)				
Benzene	µg/L	ND (1.0)	1.5	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Chlorobenzene	µg/L	ND (1.0)	0.30 J	ND (1.0)	0.51 J	ND (1.0)	ND (1.0)
Chloroethane	µg/L	ND (1.0)	ND (1.0)				
Chloroform (Trichloromethane)	µg/L	ND (1.0)	0.17 J	ND (1.0)	0.39 J	ND (1.0)	0.58 J
Chloromethane (Methyl Chloride)	µg/L	ND (1.0)	ND (1.0)				
cis-1,2-Dichloroethene	µg/L	2.9	3.9	0.60 J	4.8	5.2	2.7
Ethylbenzene	µg/L	ND (1.0)	ND (1.0)				
Methylene chloride	µg/L	ND (1.0)	ND (1.0)				
Tetrachloroethene	µg/L	ND (1.0)	0.70 J	ND (1.0)	0.66 J	ND (1.0)	ND (1.0)
Toluene	µg/L	ND (1.0)	ND (1.0)				
trans-1,2-Dichloroethene	µg/L	0.36 J	ND (1.0)	ND (1.0)	ND (1.0)	0.34 J	0.19 J
Trichloroethene	µg/L	0.66 J	0.47 J	0.96 J	0.75 J	0.64 J	0.61 J
Vinyl chloride	µg/L	ND (1.0)	ND (1.0)				
Xylene (total)	µg/L	ND (1.0)	ND (1.0)				

Notes:

- J - Estimated.
- ND - Non-detect at associated value.
- U - Not present at or above the associated value.

TABLE 3.2

ROUND 29 ANALYTICAL RESULTS FOR LOWER AQUIFER MONITORING WELLS - VOCs

Sample Location:	MW85	MW86	MW87	MW88	MW89	MW90
Sample ID:	GW-071709-GL-693-MW	GW-072309-NZ-709-MW	GW-071709-GL-690-MW	GW-071709-GL-691-MW	GW-071709-GL-689-MW	GW-071609-GL-688-MW
Sample Date:	7/17/2009	7/23/2009	7/17/2009	7/17/2009	7/17/2009	7/16/2009
Parameters	Units	(Duplicate)				
Volatile Organic Compounds						
1,1,1-Trichloroethane	µg/L	1.2	ND (1.0)	ND (1.7)	ND (1.0)	ND (2.5)
1,1,2-Trichloroethane	µg/L	ND (1.0)	ND (1.0)	ND (1.7)	0.32 J	ND (2.5)
1,1-Dichloroethane	µg/L	0.63 J	2.9	48	25	1.1
1,1-Dichloroethene	µg/L	ND (1.0)	0.54 J	3.3	2.8	ND (1.0)
1,2-Dibromoethane (Ethylene Dibromide)	µg/L	ND (1.0)	ND (1.0)	ND (1.7)	ND (1.0)	ND (1.0)
1,2-Dichlorobenzene	µg/L	ND (1.0)	ND (1.0)	ND (1.7)	ND (1.0)	ND (1.0)
1,2-Dichloroethane	µg/L	7.0	ND (1.0)	13	13	8.1
Acetone	µg/L	ND (10)	ND (10)	ND (17)	ND (10)	ND (10)
Benzene	µg/L	ND (1.0)	4.3	ND (1.7)	ND (1.0)	ND (1.0)
Chlorobenzene	µg/L	ND (1.0)	ND (1.0)	ND (1.7)	ND (1.0)	0.24 J
Chloroethane	µg/L	ND (1.0)	ND (1.0)	ND (1.7)	ND (1.0)	ND (1.0)
Chloroform (Trichloromethane)	µg/L	0.60 J	ND (1.0)	ND (1.7)	ND (1.0)	ND (1.0)
Chloromethane (Methyl Chloride)	µg/L	ND (1.0)	ND (1.0)	ND (1.7)	ND (1.0)	ND (1.0)
cis-1,2-Dichloroethene	µg/L	2.5	7.8	24	20	7.9
Ethylbenzene	µg/L	ND (1.0)	ND (1.0)	ND (1.7)	ND (1.0)	ND (1.0)
Methylene chloride	µg/L	ND (1.0)	ND (1.0)	ND (1.7)	ND (1.0)	ND (1.0)
Tetrachloroethene	µg/L	ND (1.0)	ND (1.0)	ND (1.7)	ND (1.0)	ND (1.0)
Toluene	µg/L	ND (1.0)	ND (1.0)	0.46 J	ND (1.0)	ND (1.0)
trans-1,2-Dichloroethene	µg/L	0.21 J	0.46 J	3.5	4.1	1.0
Trichloroethene	µg/L	0.64 J	ND (1.0)	ND (1.7)	ND (1.0)	3.7
Vinyl chloride	µg/L	ND (1.0)	ND (1.0)	0.53 J	0.43 J	ND (1.0)
Xylene (total)	µg/L	ND (1.0)	ND (1.0)	ND (1.7)	ND (1.0)	ND (1.0)

Notes:

- J - Estimated.
- ND - Non-detect at associated value.
- U - Not present at or above the associated value.

TABLE 3.2

ROUND 29 ANALYTICAL RESULTS FOR LOWER AQUIFER MONITORING WELLS - VOCs

Sample Location:	MW91	MW92	MW93	MW94	MW95	MW96
Sample ID:	GW-071609-GL-687-MW	GW-071009-GL-674-MW	GW-071009-GL-675-MW	GW-071509-GL-683MW	GW-071509-GL-682MW	GW-070709-GL-663-MW
Sample Date:	7/16/2009	7/10/2009	7/10/2009	7/15/2009	7/15/2009	7/7/2009
Parameters	Units					
Volatile Organic Compounds						
1,1,1-Trichloroethane	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
1,1,2-Trichloroethane	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	0.30 J
1,1-Dichloroethane	µg/L	ND (1.0)	16	ND (1.0)	0.25 J	22
1,1-Dichloroethene	µg/L	0.53 J	1.0	ND (1.0)	ND (1.0)	0.98 J
1,2-Dibromoethane (Ethylene Dibromide)	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
1,2-Dichlorobenzene	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
1,2-Dichloroethane	µg/L	1.4	ND (1.0)	ND (1.0)	0.79 J	27
Acetone	µg/L	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Benzene	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Chlorobenzene	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Chloroethane	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Chloroform (Trichloromethane)	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Chloromethane (Methyl Chloride)	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
cis-1,2-Dichloroethene	µg/L	30	33	ND (1.0)	ND (1.0)	11
Ethylbenzene	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Methylene chloride	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Tetrachloroethene	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Toluene	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
trans-1,2-Dichloroethene	µg/L	1.6	1.8	ND (1.0)	ND (1.0)	1.6
Trichloroethene	µg/L	15	ND (1.0)	ND (1.0)	ND (1.0)	1.5
Vinyl chloride	µg/L	2.3	5.1	1.8	ND (1.0)	0.24 J
Xylene (total)	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)

Notes:

- J - Estimated.
- ND - Non-detect at associated value.
- U - Not present at or above the associated value.

TABLE 3.2

ROUND 29 ANALYTICAL RESULTS FOR LOWER AQUIFER MONITORING WELLS - VOCs

Sample Location:	MW96	MW97	MW97	MW98	MW99	MW100
Sample ID:	GW-070709-GL-664-MW	GW-070709-GL-661-MW	GW-070709-GL-662-MW	GW-072109-NZ-701-MW	GW-072109-NZ-700-MW	GW-070709-GL-659-MW
Sample Date:	7/7/2009	7/7/2009	7/7/2009	7/21/2009	7/21/2009	7/7/2009
Parameters	Units	(Duplicate)	(Duplicate)	(Duplicate)	(Duplicate)	(Duplicate)
<i>Volatile Organic Compounds</i>						
1,1,1-Trichloroethane	µg/L	ND (1.0)				
1,1,2-Trichloroethane	µg/L	ND (1.0)				
1,1-Dichloroethane	µg/L	ND (1.0)				
1,1-Dichloroethene	µg/L	ND (1.0)				
1,2-Dibromoethane (Ethylene Dibromide)	µg/L	ND (1.0)				
1,2-Dichlorobenzene	µg/L	ND (1.0)				
1,2-Dichloroethane	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	0.23 J	ND (1.0)
Acetone	µg/L	ND (10)	ND (10)	ND (10)	ND (10) U	ND (10)
Benzene	µg/L	ND (1.0)				
Chlorobenzene	µg/L	ND (1.0)				
Chloroethane	µg/L	ND (1.0)				
Chloroform (Trichloromethane)	µg/L	ND (1.0)				
Chloromethane (Methyl Chloride)	µg/L	ND (1.0)				
cis-1,2-Dichloroethene	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	13	0.38 J
Ethylbenzene	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	6.1	ND (1.0)
Methylene chloride	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0) U
Tetrachloroethene	µg/L	ND (1.0)				
Toluene	µg/L	ND (1.0)				
trans-1,2-Dichloroethene	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	0.85 J	1.3
Trichloroethene	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	19	0.37 J
Vinyl chloride	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	5.5	ND (1.0)
Xylene (total)	µg/L	ND (1.0)				

Notes:

- J - Estimated.
- ND - Non-detect at associated value.
- U - Not present at or above the associated value.

TABLE 3.2

ROUND 29 ANALYTICAL RESULTS FOR LOWER AQUIFER MONITORING WELLS - VOCs

Sample Location:	MW101	MW102	MW103	MW104	MW105	MW105	MW106
Sample ID:	GW-070909-GL-672-MW	GW-071409-GL-677-MW	GW-071409-GL-678-MW	GW-072109-NZ-702-MW	GW-072109-NZ-703-MW	GW-072109-NZ-704-MW	GW-070709-GL-660-MW
Sample Date:	7/9/2009	7/14/2009	7/14/2009	7/21/2009	7/21/2009	7/21/2009	7/7/2009
Parameters	Units					(Duplicate)	
Volatile Organic Compounds							
1,1,1-Trichloroethane	µg/L	ND (1.0)	ND (1.0)	0.27 J	ND (1.0)	ND (1.0)	ND (1.0)
1,1,2-Trichloroethane	µg/L	ND (1.0)					
1,1-Dichloroethane	µg/L	ND (1.0)					
1,1-Dichloroethene	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	0.25 J	ND (1.0)	ND (1.0)
1,2-Dibromoethane (Ethylene Dibromide)	µg/L	ND (1.0)					
1,2-Dichlorobenzene	µg/L	ND (1.0)					
1,2-Dichloroethane	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	0.26 J	ND (1.0)	ND (1.0)
Acetone	µg/L	ND (10)					
Benzene	µg/L	ND (1.0)	0.52 J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Chlorobenzene	µg/L	ND (1.0)					
Chloroethane	µg/L	ND (1.0)					
Chloroform (Trichloromethane)	µg/L	0.17 J	ND (1.0)				
Chloromethane (Methyl Chloride)	µg/L	ND (1.0)					
cis-1,2-Dichloroethene	µg/L	2.6	1.4	ND (1.0)	25	16	ND (1.0)
Ethylbenzene	µg/L	ND (1.0)					
Methylene chloride	µg/L	ND (1.0)					
Tetrachloroethene	µg/L	ND (1.0)	ND (1.0)	0.44 J	ND (1.0)	ND (1.0)	ND (1.0)
Toluene	µg/L	ND (1.0)	0.19 J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
trans-1,2-Dichloroethene	µg/L	0.19 J	ND (1.0)	ND (1.0)	0.73 J	1.0	0.99 J
Trichloroethene	µg/L	ND (1.0)	0.89 J	ND (1.0)	23	1.5	ND (1.0)
Vinyl chloride	µg/L	ND (1.0)	ND (1.0)	ND (1.0)	5.1	ND (1.0)	1.4
Xylene (total)	µg/L	ND (1.0)					

Notes:

- J - Estimated.
- ND - Non-detect at associated value.
- U - Not present at or above the associated value.

TABLE 4.1

SUMMARY OF GROUNDWATER MONITORING FOR MNA PILOT PROGRAM

<i>Well</i>	<i>Annual Monitoring</i>	<i>Semi-annual Monitoring</i>	<i>Supplemental Monitoring (see notes)</i>	<i>Sampling Rationale</i>
MW68	FP, VOCs, DG, GC			monitor on-site conditions and response to on-site groundwater extraction
MW69	FP, VOCs, DG, GC			
MW70	FP, VOCs, DG, GC			
MW71	FP, VOCs, GC			monitor conditions immediately upgradient of site
MW72	FP, VOCs, GC			
MW73	FP, VOCs, GC			
MW86	FP, VOCs, DG, GC	FP, VOCs		monitor conditions within plume area
MW87	FP, VOCs, DG, GC	FP, VOCs		monitor conditions within plume area
MW88	FP, VOCs, DG, GC	FP, VOCs		
MW89	FP, VOCs, DG, GC	FP, VOCs		
MW90	FP, VOCs, DG, GC	FP, VOCs	FP, VOCs	monitor conditions near south end of plume area
MW91	FP, VOCs, DG, GC	FP, VOCs	FP, VOCs	
MW92	FP, VOCs	FP, VOCs		monitor conditions on west side of plume area
MW93	FP, VOCs	FP, VOCs		
MW94	FP, VOCs, DG, GC	FP, VOCs	FP, VOCs	monitor conditions within plume area
MW95	FP, VOCs, DG, GC	FP, VOCs	FP, VOCs	
MW96	FP, VOCs			monitor conditions downgradient of plume area
MW97	FP, VOCs			
MW98	FP, VOCs			monitor conditions downgradient of plume area
MW99	FP, VOCs			
MW100	FP, VOCs	FP, VOCs		monitor conditions on west side of plume area
MW101	FP, VOCs	FP, VOCs	FP, VOCs	monitor conditions downgradient of plume area
MW102	FP, VOCs			monitor conditions downgradient of plume area
MW103	FP, VOCs			
MW104	FP, VOCs			monitor conditions downgradient of plume area
MW105	FP, VOCs			
MW106	FP, VOCs	FP, VOCs		monitor conditions on west side of plume area

Definitions:

FP	Field Parameters listed in Table 4.2
VOCs	Volatile Organic Compounds listed in Table 4.2
DG	Dissolved gases listed in Table 4.2
GC	General chemistry parameters listed in Table 4.2

Notes:

- 1) MW74 through MW85 are not included since these wells are all located on-Site or in close proximity to the Site and contain relatively low VOC concentrations.
- 2) The monitoring program will commence following water level recovery to pre-pumping conditions.
- 3) The monitoring program will include six sampling rounds (three annual and three semi-annual events) and then will be re-assessed to determine future monitoring requirements.
- 4) Supplemental monitoring will be conducted during the first year (including two quarterly events).

TABLE 4.2

GROUNDWATER MONITORING PARAMETER LIST AND TEST METHODS

<i>Parameter</i>	<i>Test Method</i>
Field Parameters	
Dissolved Oxygen	MP20 field instrument
Oxidation-reduction potential (ORP)	MP20 field instrument
pH	MP20 field instrument
temperature	MP20 field instrument
conductivity	MP20 field instrument
turbidity	Hach Turbidity field instrument
Volatile Organic Compounds	
	SW-846 8260B
1,1,1-Trichloroethane	
1,1,2-Trichloroethane	
1,1-Dichloroethane	
1,1-Dichloroethene	
1,2-Dibromoethane (Ethylene Dibromide)	
1,2-Dichlorobenzene	
1,2-Dichloroethane	
Acetone	
Benzene	
Chlorobenzene	
Chloroethane	
Chloroform (Trichloromethane)	
Chloromethane (Methyl Chloride)	
cis-1,2-Dichloroethene	
Ethylbenzene	
Methylene chloride	
Tetrachloroethene	
Toluene	
trans-1,2-Dichloroethene	
Trichloroethene	
Vinyl chloride	
Xylene (total)	
Dissolved Gases	
Ethane, Ethene, Methane	RSK-175
General Chemistry Parameters	
Dissolved Organic Carbon	EPA 415.1
Nitrate	EPA 300.0A
Nitrite	EPA 300.0A
Manganese (dissolved)	SW-846 6010B
Iron (dissolved)	SW-846 6010B
Sulfide	EPA 376.1
Sulfate	EPA 300.0A
Alkalinity	EPA 310.1
Chloride	EPA 300.0A

Analytical methods references:

SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", EPA SW-846, 3rd Edition with Updates I through IIIB.

EPA - "Methods for Chemical Analysis of Water and Wastes", EPA-600/4-79-020, revised March 1983

RSK - R.S. Kerr Laboratory internal standard operating procedure, EPA 1994

APPENDIX A

ANALYTICAL DATA TABLES –
VOCs, DISSOLVED GASES, AND ETHANOL
(ON COMPACT DISC)

APPENDIX B

ANALYTICAL DATA TABLES – METALS, GENERAL CHEMISTRY,
AND FIELD PARAMETERS

TABLE B-1

SUMMARY OF ANALYTICAL RESULTS FOR METALS AND GENERAL CHEMISTRY PARAMETERS FOR MONITORING WELL SAMPLES
PRISTINE, INC. SITE

Sample Round		R15	R15	R17	R19	R15	R15	R17	R19	R7	R15
Sample Location:		MW68	MW68	MW68	MW68	MW69	MW69	MW69	MW69	MW70	MW70
Sample ID:		W-LB-175-MW	W-LB-175-MW	W-071503-LB-262-MW	W-071405-NZ-359-MW	W-LB-156-MW	W-LB-156-MW	W-071503-LB-261-MW	W-071405-NZ-358-MW	W-BP-017	W-LB-143-MW
Sample Date:		9/19/2001	9/19/2001	7/15/2003	7/14/2005	9/11/2001	9/11/2001	7/15/2003	7/14/2005	8/9/1996	9/5/2001
Parameters	Units		Duplicate				Duplicate				
Total Metals											
Calcium	mg/L	-	-	15.7	6.4	-	-	97.2	116	-	-
Iron	mg/L	-	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	-	-	122	90.0	-	-	18.3	24.0	-	-
Manganese	mg/L	-	-	-	-	-	-	-	-	-	-
Potassium	mg/L	-	-	37.8	38.8	-	-	ND (5.0)	5.4	-	-
Sodium	mg/L	-	-	153	171	-	-	189	198	-	-
Dissolved Metals											
Calcium (dissolved)	mg/L	-	-	-	-	-	-	-	-	187 J	-
Iron (dissolved)	mg/L	ND (5.0)	-	ND (0.10)	ND (0.10)	1.3	-	0.65	0.85	1.1	ND (5.0)
Magnesium (dissolved)	mg/L	-	-	-	-	-	-	-	-	52.3	-
Manganese (dissolved)	mg/L	0.20	-	0.18	0.049	1.1	-	0.92	0.85	1.1	0.53
Potassium (dissolved)	mg/L	-	-	-	-	-	-	-	-	ND (5)	-
Sodium (dissolved)	mg/L	-	-	-	-	-	-	-	-	115	-
General Chemistry											
Alkalinity, bicarbonate	mg/L	46	47	120	160	300	300	340	270	350	300
Alkalinity, carbonate	mg/L	ND (5.0)	ND (5.0)	28	37	32	31	ND (5.0)	26	ND (5.0)	ND (5.0)
Alkalinity, total (as CaCO3)	mg/L	46	-	150	200	330	-	340	290	-	300
Chloride	mg/L	273	-	240	192 J	298	-	262	263 J	280	178
Dissolved organic carbon (DOC)	mg/L	6	-	-	-	4	-	-	-	3	2
Nitrate (as N)	mg/L	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	0.2	ND (0.50)
Nitrite (as N)	mg/L	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.1)	ND (0.50)
Sulfate	mg/L	628	-	475	266	103	-	86.1	84.8	330	119
Sulfide	mg/L	2.2	-	ND (1.7) U	ND (1.0)	1.4	-	ND (2.5) U	ND (1.0)	ND (0.50)	ND (1.0)
Total organic carbon (TOC)	mg/L	6	-	5	4	3	-	3	3	-	2

Notes:

- ND - Not detected.
- "-" - Not analyzed.
- J - Estimated value.
- U - Not detected.
- UJ - Estimated reporting limit.
- R - Rejected.

TABLE B-1

**SUMMARY OF ANALYTICAL RESULTS FOR METALS AND GENERAL CHEMISTRY PARAMETERS FOR MONITORING WELL SAMPLES
PRISTINE, INC. SITE**

Sample Round		R17	R19	R15	R17	R19	R15	R17	R19	R7
Sample Location:		MW70	MW70	MW71	MW71	MW71	MW72	MW72	MW72	MW73
Sample ID:		W-071503-LB-259-MW	W-071305-NZ-357-MW	W-LB-141-MW	W-071003-LB-250-MW	W-080305-NZ-399-MW	W-LB-142-MW	W-070903-LB-246-MW	W-080105-NZ-392-MW	W-BP-007
Sample Date:		7/15/2003	7/13/2005	9/5/2001	7/10/2003	8/3/2005	9/5/2001	7/9/2003	8/1/2005	8/6/1996
Parameters	Units									
Total Metals										
Calcium	mg/L	107	85.5	-	79.0	134	-	26.5	76.5	-
Iron	mg/L	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	38.3	39.6	-	ND (5.0)	29.5	-	21.3	23.0	-
Manganese	mg/L	-	-	-	-	-	-	-	-	-
Potassium	mg/L	6.4	9.3	-	11.7	ND (5.0)	-	9.0	ND (5.0)	-
Sodium	mg/L	72.9	71.8	-	84.7	118	-	116	130	-
Dissolved Metals										
Calcium (dissolved)	mg/L	-	-	-	-	-	-	-	-	167
Iron (dissolved)	mg/L	0.49	0.33 J	ND (5.0)	ND (0.10)	4.9	ND (5.0)	ND (0.10)	1.8	7.4
Magnesium (dissolved)	mg/L	-	-	-	-	-	-	-	-	37.4
Manganese (dissolved)	mg/L	0.50	0.32 J	ND (0.015)	ND (0.015)	0.83	0.015	ND (0.10)	0.14	0.53
Potassium (dissolved)	mg/L	-	-	-	-	-	-	-	-	ND (5)
Sodium (dissolved)	mg/L	-	-	-	-	-	-	-	-	46.2
General Chemistry										
Alkalinity, bicarbonate	mg/L	310	230 J	17	ND (5.0)	200	140	130	240 J	360
Alkalinity, carbonate	mg/L	ND (5.0)	25	15	24	23	23	13	21	ND (5.0)
Alkalinity, total (as CaCO ₃)	mg/L	310	250 J	33	30	230	170	140	260	-
Chloride	mg/L	153	133	167	211	229	151	205	178	100
Dissolved organic carbon (DOC)	mg/L	-	-	16	-	-	3	-	-	1
Nitrate (as N)	mg/L	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.1) UJ
Nitrite (as N)	mg/L	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.1) UJ
Sulfate	mg/L	106	79.5	93.0	89.3	108	51.6	50.2	77.9	300 J
Sulfide	mg/L	ND (1.0)	3.0	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	1.9 J
Total organic carbon (TOC)	mg/L	2	1	2	3	2	2	2	2	-

Notes:

- ND - Not detected.
 "-" - Not analyzed.
 J - Estimated value.
 U - Not detected.
 UJ - Estimated reporting limit.
 R - Rejected.

TABLE B-1

**SUMMARY OF ANALYTICAL RESULTS FOR METALS AND GENERAL CHEMISTRY PARAMETERS FOR MONITORING WELL SAMPLES
PRISTINE, INC. SITE**

Sample Round		R15	R15	R16	R17	R19	R23	R29	R19	R7
Sample Location:		MW73	MW73	MW73	MW73	MW73	MW73	MW73	MW74	MW76
Sample ID:		W-LB-150-MW	W-LB-151-MW	W-071502-LB-195-MW	W-071003-LB-251-MW	W-071805-GL-366-MW	GW-072507-NZ-495-MW	GW-071609-GL-686-MW	W-080305-NZ-398-MW	W-BP-008
Sample Date:		9/7/2001	9/7/2001	7/15/2002	7/10/2003	7/18/2005	7/25/2007	7/16/2009	8/3/2005	8/6/1996
Parameters	Units	Duplicate								
Total Metals										
Calcium	mg/L	-	-	167	147	155	74.4	113	162	-
Iron	mg/L	-	-	-	-	-	-	-	-	-
Magnesium	mg/L	-	-	37.0	31.6	32.4	26.2	32.7	44.0	-
Manganese	mg/L	-	-	-	-	-	-	-	-	-
Potassium	mg/L	-	-	5.4	ND (5.0)	ND (5.0)	5.7	6.9	ND (5.0)	-
Sodium	mg/L	-	-	58.4	51.3	61.7	125	99.0	55.6	-
Dissolved Metals										
Calcium (dissolved)	mg/L	-	-	-	-	-	-	-	-	174
Iron (dissolved)	mg/L	11.0	11.5	8.1	7.6	8.8 J	2.3	2.0	17.7	8.7
Magnesium (dissolved)	mg/L	-	-	-	-	-	-	-	-	39.7
Manganese (dissolved)	mg/L	0.53	0.55	0.42	0.44	0.47 J	0.19	0.23	1.2	0.48
Potassium (dissolved)	mg/L	-	-	-	-	-	-	-	-	6.9
Sodium (dissolved)	mg/L	-	-	-	-	-	-	-	-	57
General Chemistry										
Alkalinity, bicarbonate	mg/L	350	350	390	350	260	180	130	320	370
Alkalinity, carbonate	mg/L	ND (5.0)	5.8 J	ND (5.0)	ND (5.0)	33	17	ND (5.0)	ND (5.0)	ND (5.0)
Alkalinity, total (as CaCO3)	mg/L	360	360	390	350	290	200	130	320	-
Chloride	mg/L	113	112	115	106	129	210	181	187	90
Dissolved organic carbon (DOC)	mg/L	3	2	1	-	-	3	R	-	1
Nitrate (as N)	mg/L	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.1) UJ
Nitrite (as N)	mg/L	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.1) UJ
Sulfate	mg/L	250	251	194	165	155	78.8	262	118	270 J
Sulfide	mg/L	ND (1.0)	ND (1.0)	ND (1.0)	1.2	ND (1.0)	8.7	ND (1.0)	ND (1.0)	2.4 J
Total organic carbon (TOC)	mg/L	1	2	-	2	1	3	3	2	-

Notes:

- ND - Not detected.
 "-" - Not analyzed.
 J - Estimated value.
 U - Not detected.
 UJ - Estimated reporting limit.
 R - Rejected.

TABLE B-1

**SUMMARY OF ANALYTICAL RESULTS FOR METALS AND GENERAL CHEMISTRY PARAMETERS FOR MONITORING WELL SAMPLES
PRISTINE, INC. SITE**

Sample Round		R7	R7	R7	R7	R10	R15	R17	R19	R7	R15	R17
Sample Location:		MW79	MW79	MW85	MW86	MW86	MW86	MW86	MW86	MW87	MW87	MW87
Sample ID:		W-BP-009	W-BP-010	W-BP-015	W-BP-016	W-JC-021	W-LB-167-MW	W-071803-LB-273-MW	W-072205-NZ-379-MW	0-BP-011	W-LB-137-MW	W-072303-LB-282-MW
Sample Date:		8/7/1996	8/7/1996	8/8/1996	8/8/1996	1/25/1999	9/14/2001	7/18/2003	7/22/2005	8/7/1996	9/4/2001	7/23/2003
Parameters	Units	Duplicate										
Total Metals												
Calcium	mg/L	-	-	-	407	240	-	153	156	154	-	175
Iron	mg/L	-	-	-	15.1	24	-	-	-	12	-	-
Magnesium	mg/L	-	-	-	118	81	-	39.6	43.8	38.9	-	44.7
Manganese	mg/L	-	-	-	1.1	0.63	-	-	-	0.79 J	-	-
Potassium	mg/L	-	-	-	ND (5)	-	-	5.9	6.0	ND (5)	-	ND (5.0)
Sodium	mg/L	-	-	-	110 J	100	-	137	185	26.8	-	43.0
Dissolved Metals												
Calcium (dissolved)	mg/L	191	177	135 J	398 J	-	-	-	-	170	-	-
Iron (dissolved)	mg/L	2	2	1.1	10.7	13	6.3	4.8	4.8 J	7.7	0.48	0.25
Magnesium (dissolved)	mg/L	48.8	46.3	33.8	116	-	-	-	-	42.7	-	-
Manganese (dissolved)	mg/L	1.7	1.5	0.69	1.1	0.54	0.55	0.40	0.38 J	0.84	1.1	0.85
Potassium (dissolved)	mg/L	9.2	9	ND (5)	ND (5)	-	-	-	-	ND (5)	-	-
Sodium (dissolved)	mg/L	170	164	41.9	110	-	-	-	-	29.6	-	-
General Chemistry												
Alkalinity, bicarbonate	mg/L	370	360	380	500	400	360 J	340	240	380	340	340
Alkalinity, carbonate	mg/L	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (1.0)	ND (5.0)	ND (5.0)	32	ND (5.0)	39	6.6
Alkalinity, total (as CaCO3)	mg/L	-	-	-	-	-	360 J	340	270	-	380	350
Chloride	mg/L	300 J	290 J	97	540	280	281	226	278	100 J	137	122
Dissolved organic carbon (DOC)	mg/L	3	2	2	4	-	17	-	-	2	2	-
Nitrate (as N)	mg/L	ND (0.1) UJ	ND (0.1) UJ	ND (0.1) UJ	ND (0.1) UJ	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.1) UJ	ND (0.50)	ND (0.50)
Nitrite (as N)	mg/L	ND (0.1) UJ	ND (0.1) UJ	ND (0.1) UJ	ND (0.1) UJ	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.1) UJ	ND (0.50)	ND (0.50)
Sulfate	mg/L	210 J	260 J	130	620	380	241	182	174	120 J	251	190
Sulfide	mg/L	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	2.0	ND (1.0)	ND (1.0)	ND (0.50)	ND (1.0)	1.4
Total organic carbon (TOC)	mg/L	-	-	-	3 J	2.7	2	2	2	2 J	2	2

Notes:

- ND - Not detected.
- "-" - Not analyzed.
- J - Estimated value.
- U - Not detected.
- UJ - Estimated reporting limit.
- R - Rejected.

TABLE B-1

**SUMMARY OF ANALYTICAL RESULTS FOR METALS AND GENERAL CHEMISTRY PARAMETERS FOR MONITORING WELL SAMPLES
PRISTINE, INC. SITE**

Sample Round		R19	R19	R7	R15	R17	R19	R7	R7	R10	R10	R15
Sample Location:		MW87	MW87	MW88	MW88	MW88	MW88	MW89	MW89	MW89	MW89	MW89
Sample ID:		W-072605-NZ-384-MW	W-072605-NZ-385-MW	W-BP-012	W-LB-162-MW	W-072303-LB-283-MW	W-072505-NZ-383-MW	W-BP-013	W-BP-014	W-JC-010	W-JC-011	W-LB-164-MW
Sample Date:		7/26/2005	7/26/2005	8/7/1996	9/13/2001	7/23/2003	7/25/2005	8/8/1996	8/8/1996	1/20/1999	1/20/1999	9/13/2001
			Duplicate						Duplicate		Duplicate	
Parameters	Units											
Total Metals												
Calcium	mg/L	160	167	141	-	164	165	204	194	200	230	-
Iron	mg/L	-	-	3	-	-	-	9.7	8.8	17	16	-
Magnesium	mg/L	41.4	43.5	41.1	-	42.4	41.1	55.2	52.8	58	67	-
Manganese	mg/L	-	-	0.83 J	-	-	-	2.7	2.5	2.7	2.6	-
Potassium	mg/L	ND (5.0)	ND (5.0)	ND (5)	-	ND (5.0)	ND (5.0)	ND (5)	ND (5)	-	-	-
Sodium	mg/L	40.0	41.9	64.7	-	60.5	44.7	181 J	168 J	160	180	-
Dissolved Metals												
Calcium (dissolved)	mg/L	-	-	143	-	-	-	200 J	201 J	-	-	-
Iron (dissolved)	mg/L	ND (0.10)	0.11	0.7	ND (5.0)	0.20	0.18	1.9	2.1	6.6	7.6	7.1
Magnesium (dissolved)	mg/L	-	-	42.9	-	-	-	54.8	55.4	-	-	-
Manganese (dissolved)	mg/L	0.87	0.81	0.82	1.3	1.3	1.3	2.6	2.6	2.2	2.6	1.6
Potassium (dissolved)	mg/L	-	-	ND (5)	-	-	-	ND (5)	ND (5)	-	-	-
Sodium (dissolved)	mg/L	-	-	69.6	-	-	-	181	177	-	-	-
General Chemistry												
Alkalinity, bicarbonate	mg/L	270	260	390	350 J	320	290 J	440	440	440	430	350 J
Alkalinity, carbonate	mg/L	41	38	ND (5.0)	ND (5.0)	ND (5.0)	35	ND (5.0)	ND (5.0)	ND (1.0)	ND (1.0)	7.7
Alkalinity, total (as CaCO ₃)	mg/L	310	300	-	350 J	320	320	-	-	-	-	360 J
Chloride	mg/L	124	132	150 J	117	120	84.8	360	380	250	180	174
Dissolved organic carbon (DOC)	mg/L	-	-	3	2	-	-	4	5	-	-	3
Nitrate (as N)	mg/L	ND (0.50)	ND (0.50)	ND (0.1) UJ	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.1) UJ	0.3 J	-	-	ND (0.50)
Nitrite (as N)	mg/L	ND (0.50)	ND (0.50)	ND (0.1) UJ	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.1) UJ	ND (0.1) UJ	-	-	ND (0.50)
Sulfate	mg/L	196	194	120 J	238	236	174	380	370	390	360	217
Sulfide	mg/L	ND (1.0)	ND (1.0)	ND (0.50)	2.0	2.1	ND (1.0)	ND (0.50)	ND (0.50)	ND (0.50) UJ	ND (0.50) UJ	ND (1.0)
Total organic carbon (TOC)	mg/L	1	2	2 J	2	2	2	3 J	3 J	2.6	3.2	2

Notes:

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- R - Rejected.

TABLE B-1

**SUMMARY OF ANALYTICAL RESULTS FOR METALS AND GENERAL CHEMISTRY PARAMETERS FOR MONITORING WELL SAMPLES
PRISTINE, INC. SITE**

<i>Sample Round</i>		<i>R17</i>	<i>R19</i>	<i>R7</i>	<i>R10</i>	<i>R15</i>	<i>R15</i>	<i>R16</i>	<i>R17</i>	<i>R19</i>
<i>Sample Location:</i>		<i>MW89</i>	<i>MW89</i>	<i>MW90</i>	<i>MW90</i>	<i>MW90</i>	<i>MW90</i>	<i>MW90</i>	<i>MW90</i>	<i>MW90</i>
<i>Sample ID:</i>		W-072303-LB-284-MW	W-072505-NZ-382-MW	W-BP-001	W-JC-004	W-LB-168-MW	W-LB-168-MW	W-072302-LB-216-MW	W-071703-LB-267-MW	W-071905-NZ-371-MW
<i>Sample Date:</i>		7/23/2003	7/25/2005	8/1/1996	1/19/1999	9/18/2001	9/18/2001	7/23/2002	7/17/2003	7/19/2005
<i>Parameters</i>	<i>Units</i>	<i>Duplicate</i>								
<i>Total Metals</i>										
Calcium	mg/L	178	189	136	160	-	-	153	162	160
Iron	mg/L	-	-	5.6 J	7.9	-	-	-	-	-
Magnesium	mg/L	54.3	50.3	37.6	43	-	-	40.7	45.3	41.8
Manganese	mg/L	-	-	1.1	1.2	-	-	-	-	-
Potassium	mg/L	ND (5.0)	5.1	ND (5)	-	-	-	5.7	ND (5.0)	ND (5.0)
Sodium	mg/L	73.0	70.2	26	41	-	-	54.4	58.3	56.7
<i>Dissolved Metals</i>										
Calcium (dissolved)	mg/L	-	-	149	-	-	-	-	-	-
Iron (dissolved)	mg/L	8.2	10.5	3.5 J	3.9	5.0	-	3.8	4.6	4.9 J
Magnesium (dissolved)	mg/L	-	-	41.2	-	-	-	-	-	-
Manganese (dissolved)	mg/L	1.1	1.1	1.2	1.1	0.74	-	0.60	0.58	0.56 J
Potassium (dissolved)	mg/L	-	-	ND (5)	-	-	-	-	-	-
Sodium (dissolved)	mg/L	-	-	28.6	-	-	-	-	-	-
<i>General Chemistry</i>										
Alkalinity, bicarbonate	mg/L	360	310 J	380	380	390	390	420	380	290
Alkalinity, carbonate	mg/L	ND (5.0)	41	ND (5.0)	ND (1.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	37
Alkalinity, total (as CaCO ₃)	mg/L	360	350	-	-	400	-	420	380	330
Chloride	mg/L	150	144	55	86	106	-	113	119	141
Dissolved organic carbon (DOC)	mg/L	-	-	34	-	1	-	2	-	-
Nitrate (as N)	mg/L	ND (0.50)	ND (0.50)	ND (0.1) UJ	-	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
Nitrite (as N)	mg/L	ND (0.50)	ND (0.50)	ND (0.1)	-	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.50)
Sulfate	mg/L	247	223	130 J	140	140	-	133	138	149
Sulfide	mg/L	ND (1.0)	ND (1.0)	0.80 J	ND (0.50) UJ	ND (1.0)	-	1.1	ND (1.0)	ND (1.0)
Total organic carbon (TOC)	mg/L	2	2	38	1.8	2	-	-	2	1

Notes:

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- R - Rejected.

TABLE B-1

**SUMMARY OF ANALYTICAL RESULTS FOR METALS AND GENERAL CHEMISTRY PARAMETERS FOR MONITORING WELL SAMPLES
PRISTINE, INC. SITE**

<i>Sample Round</i>		R23	R29	R7	R10	R15	R16	R17	R17	R19
<i>Sample Location:</i>		MW90	MW90	MW91	MW91	MW91	MW91	MW91	MW91	MW91
<i>Sample ID:</i>		GW-073107-NZ-507-MW	GW-071609-GL-688-MW	W-BP-002	W-JC-005	W-LB-169-MW	W-072302-LB-217-MW	W-071703-LB-268-MW	W-071703-LB-269-MW	W-071905-NZ-370-MW
<i>Sample Date:</i>		7/31/2007	7/16/2009	8/1/1996	1/19/1999	9/18/2001	7/23/2002	7/17/2003	7/17/2003	7/19/2005
<i>Parameters</i>	<i>Units</i>								<i>Duplicate</i>	
Total Metals										
Calcium	mg/L	170	141	171	180	-	154	160	154	169
Iron	mg/L	-	-	7.2 J	6.1	-	-	-	-	-
Magnesium	mg/L	46.1	44.1	48.6	50	-	42.8	43.6	42.1	47.2
Manganese	mg/L	-	-	0.71	0.57	-	-	-	-	-
Potassium	mg/L	6.9	10.2	ND (5)	-	-	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)
Sodium	mg/L	62.9	53.0	46.1	72	-	55.0	57.6	55.8	63.1
Dissolved Metals										
Calcium (dissolved)	mg/L	-	-	167	-	-	-	-	-	-
Iron (dissolved)	mg/L	4.5	1.3	5.4 J	4.3	ND (5.0)	4.3	4.7	4.8	4.7 J
Magnesium (dissolved)	mg/L	-	-	47.7	-	-	-	-	-	-
Manganese (dissolved)	mg/L	0.63	0.26	0.69	0.56	0.59	0.56	0.56	0.56	0.62 J
Potassium (dissolved)	mg/L	-	-	ND (5)	-	-	-	-	-	-
Sodium (dissolved)	mg/L	-	-	45.4	-	-	-	-	-	-
General Chemistry										
Alkalinity, bicarbonate	mg/L	330	290	400	390	390	440	390	380	340
Alkalinity, carbonate	mg/L	31	ND (5.0)	ND (5.0)	ND (1.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)
Alkalinity, total (as CaCO ₃)	mg/L	360	290	-	-	390	440	390	380	340
Chloride	mg/L	124	132	97	230	107	114	122	122	146
Dissolved organic carbon (DOC)	mg/L	3	R	37	-	2	1	-	-	-
Nitrate (as N)	mg/L	ND (0.50)	ND (0.50)	ND (0.1) UJ	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Nitrite (as N)	mg/L	ND (0.50)	ND (0.50)	ND (0.1)	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Sulfate	mg/L	132	139	370 J	190	141	138	139	139	156
Sulfide	mg/L	ND (1.0)	ND (1.0)	ND (0.50) UJ	ND (0.50) UJ	1.1	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Total organic carbon (TOC)	mg/L	2	2	41	1.7	2	-	2	2	1

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TABLE B-1

**SUMMARY OF ANALYTICAL RESULTS FOR METALS AND GENERAL CHEMISTRY PARAMETERS FOR MONITORING WELL SAMPLES
PRISTINE, INC. SITE**

Sample Round		R23	R29	R7	R7	R16	R16a	R23	R29	R7
Sample Location:		MW91	MW91	MW92	MW93	MW93	MW93	MW93	MW93	MW94
Sample ID:		GW-080207-NZ-513-MW	GW-071609-GL-687-MW	W-BP-006	W-BP-005	W-072202-LB-212-MW	W-101802-LB-235-MW	GW-080807-NZ-523-MW	GW-071009-GL-675-MW	W-BP-003
Sample Date:		8/2/2007	7/16/2009	8/5/1996	8/5/1996	7/22/2002	10/18/2002	8/8/2007	7/10/2009	8/2/1996
Parameters	Units									
Total Metals										
Calcium	mg/L	152	144	136	158	149	142	142	134	102
Iron	mg/L	-	-	9.9	20.3	-	-	-	-	1.4 J
Magnesium	mg/L	43.4	39.9	37	41.4	34.3	34.2	46.1	47.6	38.7
Manganese	mg/L	-	-	0.8	0.41	-	-	-	-	0.35
Potassium	mg/L	ND (5.0)	ND (5.0)	ND (5)	ND (5)	6.1	6.5	5.6	ND (5.0)	8.5
Sodium	mg/L	54.9	50.6	38	64.8	42.5	37.3	43.6	43.8	43.1
Dissolved Metals										
Calcium (dissolved)	mg/L	-	-	139	134	-	-	-	-	102
Iron (dissolved)	mg/L	4.4	4.9	4.5	6.9	14.3	12.2	14.6	10.3	0.94 J
Magnesium (dissolved)	mg/L	-	-	38.4	36	-	-	-	-	39.2
Manganese (dissolved)	mg/L	0.60	0.59	0.81	0.34	0.54	0.51	0.70	0.71	0.34
Potassium (dissolved)	mg/L	-	-	ND (5)	ND (5)	-	-	-	-	9.4
Sodium (dissolved)	mg/L	-	-	39.5	62.1	-	-	-	-	44.2
General Chemistry										
Alkalinity, bicarbonate	mg/L	360	330	320	340	360	330	370	370	300
Alkalinity, carbonate	mg/L	9.6	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	20	ND (5.0)	ND (5.0)
Alkalinity, total (as CaCO3)	mg/L	370	330	-	-	360	330	390	370	-
Chloride	mg/L	119	127	92	95	71.5	74.1	89.0	94.9 J	65
Dissolved organic carbon (DOC)	mg/L	3	R	5	4	2	-	5	R	3
Nitrate (as N)	mg/L	ND (0.50)	ND (0.50)	ND (0.1) UJ	ND (0.1) UJ	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) UJ	ND (0.1)
Nitrite (as N)	mg/L	ND (0.50)	ND (0.50)	ND (0.1) UJ	ND (0.1) UJ	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50) UJ	ND (0.1)
Sulfate	mg/L	136	178	140 J	210 J	199	196	139	172 J	150 J
Sulfide	mg/L	ND (1.0)	ND (1.0)	2.2 J	1.9 J	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	1.1 J
Total organic carbon (TOC)	mg/L	2	2	4 J	3 J	-	3	4	2	3

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- R - Rejected.

TABLE B-1

**SUMMARY OF ANALYTICAL RESULTS FOR METALS AND GENERAL CHEMISTRY PARAMETERS FOR MONITORING WELL SAMPLES
PRISTINE, INC. SITE**

Sample Round		R15	R15	R17	R19	R7	R15	R16	R17	R17
Sample Location:		MW94	MW94	MW94	MW94	MW95	MW95	MW95	MW95	MW95
Sample ID:		W-LB-139-MW	W-LB-139-MW	W-070803-LB-240-MW	W-071205-NZ-354-MW	W-BP-004	W-LB-170-MW	W-072902-LB-230-MW	W-070803-LB-241-MW	W-070803-LB-242-MW
Sample Date:		9/5/2001	9/5/2001	7/8/2003	7/12/2005	8/2/1996	9/18/2001	7/29/2002	7/8/2003	7/8/2003
			Duplicate							Duplicate
Parameters	Units									
Total Metals										
Calcium	mg/L	-	-	90.0	109	134	-	217	129	131
Iron	mg/L	-	-	-	-	3.8 J	-	-	-	-
Magnesium	mg/L	-	-	34.5	37.2	36.6	-	62.1	38.4	38.4
Manganese	mg/L	-	-	-	-	0.35	-	-	-	-
Potassium	mg/L	-	-	7.2	ND (5.0)	ND (5)	-	5.1	ND (5.0)	ND (5.0)
Sodium	mg/L	-	-	19.8	17.3	25.9	-	146	159	160
Dissolved Metals										
Calcium (dissolved)	mg/L	-	-	-	-	121	-	-	-	-
Iron (dissolved)	mg/L	ND (5.0)	-	0.49	1.7	2 J	ND (5.0)	2.9	1.7	1.6
Magnesium (dissolved)	mg/L	-	-	-	-	33.5	-	-	-	-
Manganese (dissolved)	mg/L	0.25	-	0.28	0.40	0.31	0.61	0.5	0.31	0.30
Potassium (dissolved)	mg/L	-	-	-	-	ND (5)	-	-	-	-
Sodium (dissolved)	mg/L	-	-	-	-	24.2	-	-	-	-
General Chemistry										
Alkalinity, bicarbonate	mg/L	270	270	280	200	340	410	390	340	350
Alkalinity, carbonate	mg/L	32	33	13 J	33	ND (5.0)	ND (5.0)	ND (5.0)	6.5	ND (5.0)
Alkalinity, total (as CaCO3)	mg/L	300	-	290	230	-	410	390	350	350
Chloride	mg/L	30.5	-	41.2	-	52	290	327	172	175
Dissolved organic carbon (DOC)	mg/L	6	-	-	-	2	3	2	-	-
Nitrate (as N)	mg/L	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.1)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Nitrite (as N)	mg/L	ND (0.50)	-	ND (0.50)	ND (0.50)	ND (0.1)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Sulfate	mg/L	76.1	-	73.8	89.0	120 J	293	212	244	248
Sulfide	mg/L	ND (1.0)	-	ND (1.0)	ND (1.0)	1.1 J	1.9	ND (1.0)	1.8	ND (1.0)
Total organic carbon (TOC)	mg/L	2	-	3	1	2	3	-	3	3

Notes:

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TABLE B-1

**SUMMARY OF ANALYTICAL RESULTS FOR METALS AND GENERAL CHEMISTRY PARAMETERS FOR MONITORING WELL SAMPLES
PRISTINE, INC. SITE**

Sample Round		R19	R19	R23	R23	R29	R10	R15	R15	R16
Sample Location:		MW95	MW95	MW95	MW95	MW95	MW96	MW96	MW96	MW96
Sample ID:		W-071305-NZ-355-MW	W-071305-NZ-356-MW	GW-080107-NZ-508-MW	GW-080107-NZ-509-MW	GW-071509-GL-682MW	W-JC-020	W-LB-133-MW	W-LB-133-MW	W-071002-LB-184-MW
Sample Date:		7/13/2005	7/13/2005	8/1/2007	8/1/2007	7/15/2009	1/25/1999	8/30/2001	8/30/2001	7/10/2002
			Duplicate		Duplicate				Duplicate	
Parameters	Units									
Total Metals										
Calcium	mg/L	173	167	186	174	166	130	-	-	178
Iron	mg/L	-	-	-	-	-	5.2	-	-	-
Magnesium	mg/L	48.5	46.9	53.4	48.8	51.3	35	-	-	52.3
Manganese	mg/L	-	-	-	-	-	1.1	-	-	-
Potassium	mg/L	ND (5.0)	ND (5.0)	5.8	ND (5.0)	8.6	-	-	-	7.5
Sodium	mg/L	88.7	86.0	61.8	56.8	78.3	290	-	-	99.6
Dissolved Metals										
Calcium (dissolved)	mg/L	-	-	-	-	-	-	-	-	-
Iron (dissolved)	mg/L	2.9 J	2.7 J	2.9	2.8	2.3	2.2	ND (5.0)	-	0.91
Magnesium (dissolved)	mg/L	-	-	-	-	-	-	-	-	-
Manganese (dissolved)	mg/L	0.46 J	0.42 J	0.52	0.50	0.39	1.1	1.7	-	1.8
Potassium (dissolved)	mg/L	-	-	-	-	-	-	-	-	-
Sodium (dissolved)	mg/L	-	-	-	-	-	-	-	-	-
General Chemistry										
Alkalinity, bicarbonate	mg/L	310 J	320 J	350	340	330	300	360 J	350 J	410
Alkalinity, carbonate	mg/L	ND (5.0)	ND (5.0)	ND (5.0)	11	ND (5.0)	ND (1.0)	ND (5.0)	7.0	ND (5.0)
Alkalinity, total (as CaCO ₃)	mg/L	310 J	320 J	350	350	330	-	360 J	-	410
Chloride	mg/L	138	139	150	151	153	450	180	-	186
Dissolved organic carbon (DOC)	mg/L	-	-	ND (3) U	ND (4) U	R	-	20	-	1
Nitrate (as N)	mg/L	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	-	ND (0.50)
Nitrite (as N)	mg/L	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	ND (0.50)	-	ND (0.50)
Sulfate	mg/L	299	304	296	298	254	140	214	-	264
Sulfide	mg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.50)	ND (1.0)	-	ND (1.0)
Total organic carbon (TOC)	mg/L	2	2	3	3	2	1.6	2	-	-

Notes:

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TABLE B-1

**SUMMARY OF ANALYTICAL RESULTS FOR METALS AND GENERAL CHEMISTRY PARAMETERS FOR MONITORING WELL SAMPLES
PRISTINE, INC. SITE**

<i>Sample Round</i>		<i>R17</i>	<i>R19</i>	<i>R23</i>	<i>R29</i>	<i>R29</i>	<i>R10</i>	<i>R10</i>	<i>R15</i>	<i>R15</i>
<i>Sample Location:</i>		<i>MW96</i>	<i>MW96</i>	<i>MW96</i>	<i>MW96</i>	<i>MW96</i>	<i>MW97</i>	<i>MW98</i>	<i>MW98</i>	<i>MW98</i>
<i>Sample ID:</i>		<i>W-070803-LB-243-MW</i>	<i>W-072005-NZ-373-MW</i>	<i>GW-071807-NZ-477-MW</i>	<i>GW-070709-GL-663-MW</i>	<i>GW-070709-GL-664-MW</i>	<i>W-JC-001</i>	<i>W-JC-002</i>	<i>W-LB-158-MW</i>	<i>W-LB-159-MW</i>
<i>Sample Date:</i>		<i>7/8/2003</i>	<i>7/20/2005</i>	<i>7/18/2007</i>	<i>7/7/2009</i>	<i>7/7/2009</i>	<i>1/15/1999</i>	<i>1/18/1999</i>	<i>9/11/2001</i>	<i>9/11/2001</i>
						<i>Duplicate</i>				<i>Duplicate</i>
<i>Parameters</i>	<i>Units</i>									
<i>Total Metals</i>										
Calcium	mg/L	175	218	185	167	164	130	190	-	-
Iron	mg/L	-	-	1.4	-	-	2.3	5.0	-	-
Magnesium	mg/L	49.2	62.1	56.3	49.8	49.0	38	52	-	-
Manganese	mg/L	-	-	2.0	-	-	1.1	1.8	-	-
Potassium	mg/L	6.9	8.2	7.1	6.6	6.5	-	-	-	-
Sodium	mg/L	87.6	94.1	92.9	92.1	90.4	120	53	-	-
<i>Dissolved Metals</i>										
Calcium (dissolved)	mg/L	-	-	-	-	-	-	-	-	-
Iron (dissolved)	mg/L	0.63	0.80	0.80	0.86	0.83	ND (0.10)	2.3	0.17	0.14
Magnesium (dissolved)	mg/L	-	-	-	-	-	-	-	-	-
Manganese (dissolved)	mg/L	1.7	2.0	2.0	1.6	1.6	0.99	1.8	2.1	1.9
Potassium (dissolved)	mg/L	-	-	-	-	-	-	-	-	-
Sodium (dissolved)	mg/L	-	-	-	-	-	-	-	-	-
<i>General Chemistry</i>										
Alkalinity, bicarbonate	mg/L	360	310 J	360	370	370	360	390	380	380
Alkalinity, carbonate	mg/L	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (1.0)	ND (1.0)	ND (5.0)	ND (5.0)
Alkalinity, total (as CaCO ₃)	mg/L	360	310 J	360	370	370	-	-	390	380
Chloride	mg/L	160	183	235	288	286	200	200	191	192
Dissolved organic carbon (DOC)	mg/L	-	-	2	R	R	-	-	11 J	3 J
Nitrate (as N)	mg/L	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	-	1.4	1.4
Nitrite (as N)	mg/L	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	-	ND (0.50)	ND (0.50)
Sulfate	mg/L	273	301	198	168	171	52	160	140	140
Sulfide	mg/L	1.3	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.50)	ND (1.0)	ND (1.0)	ND (1.0)
Total organic carbon (TOC)	mg/L	1	1	5	2	1	1.5	2.6	1	1

Notes:

- ND - Not detected.
- "-" - Not analyzed.
- J - Estimated value.
- U - Not detected.
- UJ - Estimated reporting limit.
- R - Rejected.

TABLE B-1

**SUMMARY OF ANALYTICAL RESULTS FOR METALS AND GENERAL CHEMISTRY PARAMETERS FOR MONITORING WELL SAMPLES
PRISTINE, INC. SITE**

<i>Sample Round</i>		<i>R16</i>	<i>R17</i>	<i>R19</i>	<i>R23</i>	<i>R29</i>	<i>R10</i>	<i>R10</i>	<i>R10</i>	<i>R15</i>	<i>R15</i>
<i>Sample Location:</i>		<i>MW98</i>	<i>MW98</i>	<i>MW98</i>	<i>MW98</i>	<i>MW98</i>	<i>MW99</i>	<i>MW100</i>	<i>MW101</i>	<i>MW101</i>	<i>MW101</i>
<i>Sample ID:</i>		<i>W-072402-LB-220-MW</i>	<i>W-071603-LB-264-MW</i>	<i>W-071805-GL-367-MW</i>	<i>GW-080107-NZ-510-MW</i>	<i>GW-072109-NZ-701-MW</i>	<i>W-JC-003</i>	<i>W-JC-016</i>	<i>W-JC-017</i>	<i>W-LB-153-MW</i>	<i>W-LB-153-MW</i>
<i>Sample Date:</i>		<i>7/24/2002</i>	<i>7/16/2003</i>	<i>7/18/2005</i>	<i>8/1/2007</i>	<i>7/21/2009</i>	<i>1/18/1999</i>	<i>1/21/1999</i>	<i>1/22/1999</i>	<i>9/7/2001</i>	<i>9/7/2001</i>
<i>Parameters</i>	<i>Units</i>										<i>Duplicate</i>
<i>Total Metals</i>											
Calcium	mg/L	177	187	181	186	167	150	170	140	-	-
Iron	mg/L	-	-	-	-	-	11	4.0	1.4	-	-
Magnesium	mg/L	50.9	51.6	49.9	52.6	48.6	39	49	41	-	-
Manganese	mg/L	-	-	-	-	-	1.4	1.3	0.87	-	-
Potassium	mg/L	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	-	-	-	-	-
Sodium	mg/L	70.1	72.8	69.7	61.9	63.2	110	55	37	-	-
<i>Dissolved Metals</i>											
Calcium (dissolved)	mg/L	-	-	-	-	-	-	-	-	-	-
Iron (dissolved)	mg/L	0.64	0.38	0.38 J	0.31	0.77	7.4	3.0	0.48	ND (5.0)	-
Magnesium (dissolved)	mg/L	-	-	-	-	-	-	-	-	-	-
Manganese (dissolved)	mg/L	1.8	1.8	1.9 J	2.1	1.8	1.4	1.2	0.85	1.0	-
Potassium (dissolved)	mg/L	-	-	-	-	-	-	-	-	-	-
Sodium (dissolved)	mg/L	-	-	-	-	-	-	-	-	-	-
<i>General Chemistry</i>											
Alkalinity, bicarbonate	mg/L	390	370	290	390	390	400	370	360	360	360
Alkalinity, carbonate	mg/L	ND (5.0)	ND (5.0)	36	9.9	ND (5.0)	ND (1.0)	ND (1.0)	ND (1.0)	5.1 J	ND (5.0)
Alkalinity, total (as CaCO ₃)	mg/L	390	370	320	400	410	-	-	-	360	-
Chloride	mg/L	197	197	192	197	203	220	130	73	216	-
Dissolved organic carbon (DOC)	mg/L	1	-	-	ND (2) U	R	-	-	-	20	-
Nitrate (as N)	mg/L	1.2	1.2	1.0	1.0	0.80	-	-	-	ND (0.50)	-
Nitrite (as N)	mg/L	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	-	-	ND (0.50)	-
Sulfate	mg/L	135	136	161	155	161	94	150	140	110	-
Sulfide	mg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.50) UJ	ND (0.50) UJ	ND (1.0)	-
Total organic carbon (TOC)	mg/L	-	2	1	3	1	1.5	1.8	1.4	2	-

Notes:

- ND - Not detected.
 "-" - Not analyzed.
 J - Estimated value.
 U - Not detected.
 UJ - Estimated reporting limit.
 R - Rejected.

TABLE B-1

**SUMMARY OF ANALYTICAL RESULTS FOR METALS AND GENERAL CHEMISTRY PARAMETERS FOR MONITORING WELL SAMPLES
PRISTINE, INC. SITE**

Sample Round		R16	R17	R19	R23	R29	R10	R10	R15	R15
Sample Location:		MW101	MW101	MW101	MW101	MW101	MW102	MW102	MW102	MW102
Sample ID:		W-071802-LB-206-MW	W-071703-LB-270-MW	W-072105-NZ-376-MW	GW-072307-NZ-490-MW	GW-070909-GL-672-MW	W-JC-008	W-JC-009	W-LB-176-MW	W-LB-176-MW
Sample Date:		7/18/2002	7/17/2003	7/21/2005	7/23/2007	7/9/2009	1/20/1999	1/20/1999	9/20/2001	9/20/2001
								Duplicate		Duplicate
Parameters	Units									
Total Metals										
Calcium	mg/L	158	153	148	128	123	180	180	-	-
Iron	mg/L	-	-	-	-	-	5.9	5.9	-	-
Magnesium	mg/L	45.4	42.8	42.4	40.8	41.8	51	50	-	-
Manganese	mg/L	-	-	-	-	-	1.8	1.7	-	-
Potassium	mg/L	ND (5.0)	ND (5.0)	ND (5.0)	5.2	ND (5.0)	-	-	-	-
Sodium	mg/L	98.2	101	104	106	115	64	65	-	-
Dissolved Metals										
Calcium (dissolved)	mg/L	-	-	-	-	-	-	-	-	-
Iron (dissolved)	mg/L	0.14	ND (0.10)	ND (0.10)	0.52	0.92	0.73	0.71	ND (5.0)	-
Magnesium (dissolved)	mg/L	-	-	-	-	-	-	-	-	-
Manganese (dissolved)	mg/L	1.0	0.95	0.97	0.54	0.68	1.6	1.6	1.7	-
Potassium (dissolved)	mg/L	-	-	-	-	-	-	-	-	-
Sodium (dissolved)	mg/L	-	-	-	-	-	-	-	-	-
General Chemistry										
Alkalinity, bicarbonate	mg/L	410	360	250	330	340	390	390	370	400
Alkalinity, carbonate	mg/L	ND (5.0)	ND (5.0)	41	25	ND (5.0)	ND (1.0)	ND (1.0)	39 J	ND (5.0)
Alkalinity, total (as CaCO ₃)	mg/L	410	360	290	350	340	-	-	400	-
Chloride	mg/L	202	221	210	193	209	160	140	206	-
Dissolved organic carbon (DOC)	mg/L	1	-	-	3	R	-	-	1	-
Nitrate (as N)	mg/L	0.52	1.1	2.0	0.70	ND (0.50)	-	-	0.66	-
Nitrite (as N)	mg/L	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-	-	ND (0.50)	-
Sulfate	mg/L	107	111	135	97.6	94.9	170	170	131	-
Sulfide	mg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (0.50) UJ	ND (0.50) UJ	ND (1.0)	-
Total organic carbon (TOC)	mg/L	-	1	1	1	1	2.2	1.5	1	-

Notes:

- ND - Not detected.
- "-" - Not analyzed.
- J - Estimated value.
- U - Not detected.
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- R - Rejected.

TABLE B-1

**SUMMARY OF ANALYTICAL RESULTS FOR METALS AND GENERAL CHEMISTRY PARAMETERS FOR MONITORING WELL SAMPLES
PRISTINE, INC. SITE**

Sample Round		R16	R16	R17	R19	R23	R29	R10	R10	R15
Sample Location:		MW102	MW102	MW102	MW102	MW102	MW102	MW103	MW104	MW104
Sample ID:		W-072202-LB-210-MW	W-072202-LB-211-MW	W-071003-LB-249-MW	W-071505-NZ-365-MW	GW-072707-NZ-500-MW	GW-071409-GL-677-MW	W-JC-007	W-JC-013	W-LB-160-MW
Sample Date:		7/22/2002	7/22/2002	7/10/2003	7/15/2005	7/27/2007	7/14/2009	1/20/1999	1/21/1999	9/12/2001
Parameters	Units		Duplicate							
Total Metals										
Calcium	mg/L	180	183	166	156	161	124	130	140	-
Iron	mg/L	-	-	-	-	-	-	4.4	5.6	-
Magnesium	mg/L	49.1	50.2	44.0	44.8	47.5	39.3	37	43	-
Manganese	mg/L	-	-	-	-	-	-	0.48	0.55	-
Potassium	mg/L	ND (5.0)	ND (5.0)	6.8	6.7	5.0	14.2	-	-	-
Sodium	mg/L	86.8	88.5	92.1	111	99.1	86.8	88	70	-
Dissolved Metals										
Calcium (dissolved)	mg/L	-	-	-	-	-	-	-	-	-
Iron (dissolved)	mg/L	0.38	0.39	0.30	0.56 J	2.3	0.95	0.32	3.5	2.0
Magnesium (dissolved)	mg/L	-	-	-	-	-	-	-	-	-
Manganese (dissolved)	mg/L	1.7	1.8	1.6	1.4 J	1.5	0.86	0.35	0.53	0.63
Potassium (dissolved)	mg/L	-	-	-	-	-	-	-	-	-
Sodium (dissolved)	mg/L	-	-	-	-	-	-	-	-	-
General Chemistry										
Alkalinity, bicarbonate	mg/L	450	450	380	290	350	250	370	370	380
Alkalinity, carbonate	mg/L	ND (5.0)	ND (5.0)	ND (5.0)	31	33	ND (5.0)	ND (1.0)	ND (1.0)	ND (5.0)
Alkalinity, total (as CaCO ₃)	mg/L	450	450	380	320	380	250	-	-	380
Chloride	mg/L	218	219	194	208	187	161	140	160	125
Dissolved organic carbon (DOC)	mg/L	2 J	1 J	-	-	2	R	-	-	2
Nitrate (as N)	mg/L	0.89	0.88	0.69	ND (0.50)	0.80	0.60	-	-	ND (0.50)
Nitrite (as N)	mg/L	ND (0.50)	ND (0.50)	ND (0.50)	ND (2.5) U G	ND (0.50)	ND (0.50)	-	-	ND (0.50)
Sulfate	mg/L	131	131	146	144	197	164	41	55	146
Sulfide	mg/L	ND (1.0)	ND (1.1) U	ND (1.0)	ND (1.0)	ND (1.0)	16	ND (0.50) UJ	ND (0.50) UJ	1.6
Total organic carbon (TOC)	mg/L	-	-	3	2	3	3	1.5	1.6	2

Notes:

- ND - Not detected.
 "-" - Not analyzed.
 J - Estimated value.
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 R - Rejected.

TABLE B-1

**SUMMARY OF ANALYTICAL RESULTS FOR METALS AND GENERAL CHEMISTRY PARAMETERS FOR MONITORING WELL SAMPLES
PRISTINE, INC. SITE**

<i>Sample Round</i>		<i>R16</i>	<i>R17</i>	<i>R19</i>	<i>R23</i>	<i>R29</i>	<i>R10</i>
<i>Sample Location:</i>		<i>MW104</i>	<i>MW104</i>	<i>MW104</i>	<i>MW104</i>	<i>MW104</i>	<i>MW105</i>
<i>Sample ID:</i>		<i>W-072902-LB-228-MW</i>	<i>W-071603-LB-266-MW</i>	<i>W-072005-NZ-374-MW</i>	<i>GW-080607-NZ-517-MW</i>	<i>GW-072109-NZ-702-MW</i>	<i>W-JC-015</i>
<i>Sample Date:</i>		<i>7/29/2002</i>	<i>7/16/2003</i>	<i>7/20/2005</i>	<i>8/6/2007</i>	<i>7/21/2009</i>	<i>1/21/1999</i>
<i>Parameters</i>	<i>Units</i>						
<i>Total Metals</i>							
Calcium	mg/L	179	177	175	166	167	130
Iron	mg/L	-	-	-	-	-	6.7
Magnesium	mg/L	48.6	46.7	47.3	46.8	46.0	38
Manganese	mg/L	-	-	-	-	-	1.5
Potassium	mg/L	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	ND (5.0)	-
Sodium	mg/L	48.1	45.5	47.3	63.1	62.4	68
<i>Dissolved Metals</i>							
Calcium (dissolved)	mg/L	-	-	-	-	-	-
Iron (dissolved)	mg/L	0.76	0.85	1.6	2.0	1.1	6.5
Magnesium (dissolved)	mg/L	-	-	-	-	-	-
Manganese (dissolved)	mg/L	0.65	0.61	0.60	0.71	0.75	1.2
Potassium (dissolved)	mg/L	-	-	-	-	-	-
Sodium (dissolved)	mg/L	-	-	-	-	-	-
<i>General Chemistry</i>							
Alkalinity, bicarbonate	mg/L	410	390	280 J	420	400	360
Alkalinity, carbonate	mg/L	ND (5.0)	ND (5.0)	40	7.2	ND (5.0)	ND (1.0)
Alkalinity, total (as CaCO ₃)	mg/L	410	390	320 J	430	400	-
Chloride	mg/L	126	125	127	162	162	150
Dissolved organic carbon (DOC)	mg/L	1	-	-	2	R	-
Nitrate (as N)	mg/L	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-
Nitrite (as N)	mg/L	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	-
Sulfate	mg/L	150	150	169	132	141	48
Sulfide	mg/L	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	46 J	ND (0.50) UJ
Total organic carbon (TOC)	mg/L	-	2	2	2	2	2.5

Notes:

- ND - Not detected.
- "-" - Not analyzed.
- J - Estimated value.
- U - Not detected.
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- R - Rejected.

TABLE B-2
FIELD PARAMETER DATA FOR ROUNDS 15, 16, 17, 19, 23, AND 29
PRISTINE, INC. SITE

<i>Monitoring Well ID</i>	<i>Date Purged/ Sampled</i>	<i>Time</i>	<i>Pumping Rate (mL/min)</i>	<i>Depth to Water (ft)</i>	<i>Drawdown from Initial Water Level (ft)</i>	<i>pH</i>	<i>Conductivity (mS/cm)</i>	<i>Temperature (°C) (°F)</i>	<i>Dissolved Oxygen (DO) (mg/L)</i>	<i>Oxidation-Reduction Potential (ORP) (mV)</i>	<i>Turbidity (NTU)</i>
MW68	7/22/2009	12:05	200	49.46	6.56	7.55	1.835	14.9 58.8	0.93	-297	14.1
	8/7/2007	10:10	400	56.38	12.71	8.68	1.392	16.8 62.3	0.16	-124	13.9
	7/14/2005	11:50	400	47.92	0.00	8.89	1.540	16.1 61.0	0.56	-123	3.19
	7/15/2003	14:05	400	43.94	0.25	8.88	1.660	16.4 61.5	0.48	-94	6.18
	7/30/2002	13:20	400	49.22	0.00	8.76	1.780	16.4 61.4	0.11	-273	6.71
	9/19/2001	--	--	--	--	8.41	1.950	16.3 61.3	0.13	-343	78.2
MW69	7/14/2009	14:30	400	42.06	0.08	7.54	2.210	15.5 59.9	0.16	-107	3.83
	7/24/2007	16:10	400	42.64	0.04	7.03	1.467	15.4 59.8	0.47	-53	1.97
	7/14/2005	10:50	400	48.71	0.00	6.98	1.580	15.4 59.7	0.36	-115	3.04
	7/15/2003	11:00	400	42.87	0.03	6.96	1.414	16.0 60.8	0.24	-127	5.08
	7/18/2002	13:55	400	44.91	0.00	6.99	1.850	19.9 67.7	0.38	-224	6.10
	9/11/2001	--	--	--	--	6.53	1.706	16.8 62.3	0.22	-258	10.7
MW70	7/9/2009	12:25	200	43.01	0.80	9.52	0.661	17.9 64.1	0.24	-314	29.1
	7/25/2007	11:15	400	47.32	4.02	7.21	1.047	15.3 59.5	0.48	-254	3.92
	7/13/2005	15:30	400	50.10	0.00	7.61	0.999	16.3 61.3	0.19	-237	9.4
	7/15/2003	09:50	400	44.08	0.26	6.98	1.056	15.6 60.1	0.59	-136	23.7
	7/12/2002	10:00	400	45.35	0.00	9.07	0.910	15.7 60.2	0.22	-300	15.1
	9/5/2001	--	--	--	--	7.92	1.199	16.0 60.8	0.13	-258	16.1
MW71	7/8/2009	15:35	200	29.15	6.34	9.41	1.128	17.6 63.7	0.56	-319	11.2
	7/20/2007	9:35	400	33.79	9.98	9.55	0.764	15.2 59.4	0.45	138	16.3
	8/3/2005	14:15	400	--	--	7.26	1.257	15.5 59.9	0.25	-174	120
	7/10/2003	14:45	400	24.10	0.10	10.86	0.921	14.5 58.1	0.25	35	3.92
	7/15/2002	11:20	400	26.50	0.00	10.97	0.891	15.0 59.1	0.66	-144	15.6
	9/5/2001	--	--	--	--	11.30	0.875	14.9 58.8	0.18	-154	20.2
MW72	7/9/2009	10:35	400	23.30	0.06	7.30	1.214	14.9 58.8	0.19	-87	1.46
	7/20/2007	11:00	400	24.15	0.08	7.34	1.273	15.4 59.8	0.43	-225	2.23
	8/1/2005	16:00	400	--	--	7.39	1.050	14.4 57.9	0.11	-188	5.2
	7/9/2003	14:40	400	25.09	0.32	8.72	0.867	15.2 59.3	0.18	-133	3.9
	7/15/2002	15:45	400	26.25	0.00	8.97	0.826	15.0 59.0	0.18	-305	29.6
	9/5/2001	--	--	--	--	9.83	0.807	15.2 59.3	0.12	-308	24.2
MW73	7/16/2009	12:10	200	23.61	0.88	8.11	1.250	16.6 61.8	0.09	-112	4.93
	7/25/2007	14:50	400	25.62	1.91	7.66	1.139	15.9 60.6	0.49	-227	70.3
	7/18/2005	11:15	400	28.67	0.06	7.04	1.197	15.1 59.2	0.17	-156	4.0
	7/10/2003	15:55	400	24.30	0.22	7.31	1.096	14.3 57.7	0.17	-141	4.92
	7/15/2002	14:20	400	24.78	0.00	7.48	1.210	15.3 59.6	0.36	-271	6.99
	9/7/2001	--	--	--	--	6.72	1.355	15.1 59.2	0.19	-249	23.7

TABLE B-2
FIELD PARAMETER DATA FOR ROUNDS 15, 16, 17, 19, 23, AND 29
PRISTINE, INC. SITE

<i>Monitoring Well ID</i>	<i>Date Purged/ Sampled</i>	<i>Time</i>	<i>Pumping Rate (mL/min)</i>	<i>Depth to Water (ft)</i>	<i>Drawdown from Initial Water Level (ft)</i>	<i>pH</i>	<i>Conductivity (mS/cm)</i>	<i>Temperature (°C) (°F)</i>	<i>Dissolved Oxygen (DO) (mg/L)</i>	<i>Oxidation-Reduction Potential (ORP) (mV)</i>	<i>Turbidity (NTU)</i>
MW74	7/8/2009	13:00	200	--	--	7.61	1.124	15.0 59.0	0.14	-231	11.3
	7/20/2007	15:05	400	32.75	3.20	7.25	1.162	14.6 58.4	0.34	-265	2.42
	8/3/2005	1055	200	37.86	4.43	6.88	1.288	15.7 60.2	0.25	-155	5.2
	7/11/2003	1040	350	30.34	0.12	6.93	1.005	15.5 59.9	0.19	-143	4.45
	7/17/2002	1430	400	31.72	0.00	6.88	1.089	16.1 61.0	0.21	-150	1.74
	9/6/2001	--	--	--	--	6.38	1.142	16.2 61.1	0.38	-198	10.7
MW75	7/8/2009	10:15	400	--	--	7.60	1.352	14.6 58.3	0.09	-144	1.97
	7/24/2007	11:10	400	30.58	0.43	6.95	1.324	14.5 58.1	0.38	-120	4.32
	7/12/2005	1510	300	36.16	0.00	7.06	1.311	15.5 59.9	0.51	-164	6.4
	7/11/2003	0830	400	30.31	0.05	6.99	1.267	14.7 58.4	0.16	-223	4.75
	7/17/2002	1000	400	30.65	0.00	7.74	1.029	16.2 61.1	0.30	-211	4.9
	9/6/2001	--	--	--	--	6.64	1.437	15.8 60.4	0.18	-256	23.7
MW76	7/8/2009	11:40	400	28.52	0.00	7.40	1.280	14.9 58.8	0.98	-201	3.98
	7/20/2007	16:10	400	29.42	0.00	6.99	1.326	14.5 58.2	0.59	-178	2.06
	7/12/2005	1115	400	39.89	0.02	6.88	1.530	15.0 59.0	0.30	-154	3.54
	7/11/2003	0935	400	29.00	0.02	7.02	1.262	15.0 59.0	0.73	-139	4.14
	7/17/2002	1140	400	29.57	0.00	7.01	1.550	16.2 61.1	0.74	-276	6.8
	9/6/2001	--	--	--	--	6.62	1.163	16.3 61.3	0.08	-319	20.4
MW77	7/15/2009	14:50	400	--	--	9.23	1.049	14.9 58.9	0.07	-309	1.51
	No Data - 2007										
	7/14/2005	1445	300	28.77	0.00	9.42	0.968	16.0 60.8	0.39	-188	4.16
	7/14/2003	1610	400	23.55	0.26	7.84	1.209	15.9 60.7	0.26	-238	2.16
	7/25/2002	1325	400	24.62	0.01	7.71	1.407	16.0 60.9	0.11	-258	6.89
	9/13/2001	--	--	--	--	7.29	1.483	15.4 59.6	0.17	-360	20.7
MW78	7/15/2009	16:05	400	22.62	0.49	8.19	1.280	14.6 58.3	0.07	-399	1.44
	7/26/2007	14:10	400	22.99	0.00	9.44	0.985	15.3 59.5	0.48	136	3.27
	7/15/2005	1000	400	26.30	0.02	9.49	1.063	14.9 58.9	0.22	-183	2.54
	7/14/2003	1450	400	23.16	0.06	8.77	1.004	15.4 59.6	0.15	-154	6.97
	7/16/2002	1000	400	23.48	0.01	9.49	1.089	15.3 59.6	0.49	-175	7.3
	9/6/2001	--	--	--	--	8.37	1.327	16.1 60.9	0.03	-371	24.1
MW79	7/9/2009	16:15	400	22.18	0.01	7.29	1.426	10.3 50.5	0.11	-251	1.96
	7/23/2007	14:00	400	22.95	0.00	6.89	1.590	14.7 58.4	0.44	62	2.48
	7/14/2005	1535	400	28.58	0.00	6.65	1.422	15.6 60.1	0.65	-88	4.99
	7/14/2003	1345	400	23.08	0.00	6.72	1.389	15.3 59.5	0.22	-25	4.26
	7/16/2002	1125	400	23.37	0.00	6.92	1.580	16.4 61.5	0.32	-252	17.6
	9/11/2001	--	--	--	--	6.39	1.659	15.5 59.9	0.19	-212	4.2
MW80	7/20/2009	14:55	400	41.43	0.16	7.35	1.389	15.0 59.0	0.13	-108	1.85
	7/26/2007	10:50	400	41.90	0.15	7.16	1.249	17.2 62.9	0.67	149	4.98
	7/21/2005	1550	400	45.36	0.01	7.22	1.237	24.1 75.5	0.50	-149	2.89
	7/18/2003	1000	400	41.69	0.25	6.99	1.176	17.5 63.5	0.48	-83	16.2
	7/25/2002	1445	400	42.41	0.00	7.02	1.394	21.2 70.1	0.46	-153	4.65
	9/13/2001	--	--	--	--	6.64	1.345	16.5 61.7	0.80	-215	23.2

TABLE B-2
FIELD PARAMETER DATA FOR ROUNDS 15, 16, 17, 19, 23, AND 29
PRISTINE, INC. SITE

Monitoring Well ID	Date Purged/ Sampled	Time	Pumping Rate (mL/min)	Depth to Water (ft)	Drawdown from Initial Water Level (ft)	pH	Conductivity (mS/cm)	Temperature		Dissolved Oxygen (DO) (mg/L)	Oxidation-Reduction Potential (ORP) (mV)	Turbidity (NTU)
	(°C)							(°F)				
MW81	7/24/2009	10:15	200	47.20	5.08	8.56	1.520	17.1	62.7	0.17	-256	13.7
	8/6/2007	15:45	400	--	--	7.06	0.704	17.7	63.9	3.09	151	2.98
	7/22/2005	11:05	400	46.90	0.00	7.36	1.489	16.2	61.2	0.16	-266	2.7
	7/18/2003	14:30	400	43.88	0.23	6.63	1.840	17.0	62.6	0.31	-274	6.62
	7/29/2002	13:55	400	44.87	0.00	6.78	1.890	20.1	68.1	0.29	-258	3.26
	9/14/2001	--	--	--	--	6.35	1.829	15.3	59.5	0.12	-347	23.7
MW82	7/23/2009	11:40	300	44.21	27.45	8.22	1.620	14.8	58.7	0.15	-184	20.1
	7/30/2007	11:55	400	45.01	0.62	7.29	1.384	15.2	59.4	0.48	-1	9.32
	7/22/2005	15:05	400	48.32	0.00	7.10	1.484	15.7	60.3	0.21	-152	4.2
	7/22/2003	11:00	400	44.41	0.00	7.19	1.208	15.0	59.0	0.49	-94	12.5
	7/24/2002	10:20	400	45.70	0.00	7.14	1.311	14.6	58.3	0.44	-220	3.84
	9/11/2001	--	--	--	--	6.74	1.575	14.2	57.6	0.63	-231	25.1
MW83	7/17/2009	14:45	400	40.16	0.00	7.69	1.282	17.0	62.6	0.75	-108.7	18.7
	No Data - 2007											
	No Data - 2005											
	No Data - 2003											
	No Data - 2002											
	No Data - 2001											
MW84	7/17/2009	15:25	200	44.84	4.63	9.80	1.121	17.8	64.0	0.15	-349	11.7
	8/3/2007	13:20	400	46.98	5.21	9.40	1.028	17.5	63.5	0.57	-23	2.01
	7/26/2005	11:35	400	45.61	0.01	7.39	1.339	16.5	61.6	0.20	-202	3.18
	7/24/2003	11:40	400	42.04	0.00	7.85	1.274	16.6	61.8	0.50	-220	130
	7/26/2002	11:25	400	42.71	0.00	7.31	1.632	17.0	62.6	0.15	-262	80.1
	9/19/2001	--	--	--	--	6.61	1.605	16.1	60.9	0.11	-384	72.6
MW85	7/17/2009	14:20	400	40.90	0.08	7.05	1.510	16.6	61.8	0.18	-151	4.76
	7/30/2007	15:55	400	41.87	0.00	6.90	1.473	17.5	63.6	0.47	6	4.93
	7/26/2005	14:10	400	45.73	0.00	6.80	1.510	17.3	63.2	0.26	-70	3.5
	7/24/2003	10:25	400	42.42	0.00	6.95	1.342	16.1	61.0	0.53	-6	24.3
	7/26/2002	10:15	400	43.46	0.00	6.83	1.710	17.4	63.2	0.27	-202	6.18
	9/19/2001	--	--	--	--	6.43	1.670	15.7	60.2	0.19	-161	24.7
MW86	7/23/2009	10:15	200	30.50	--	7.01	2.020	15.2	59.4	0.15	-178	31.3
	8/2/2007	11:35	400	35.58	0.06	6.99	1.670	16.0	60.8	0.38	-56	4.93
	7/22/2005	14:15	400	51.11	0.00	6.69	1.690	17.3	63.1	0.27	-112	3.98
	7/18/2003	11:40	400	46.07	0.07	6.70	1.433	16.6	61.8	0.39	-76	4.18
	7/31/2002	14:40	400	47.06	0.01	6.56	1.570	17.6	63.6	0.17	-235	7.20
	9/14/2001	--	--	--	--	6.27	1.796	14.9	58.8	0.15	-265	23.3
MW87	7/17/2009	11:00	400	--	--	6.62	1.328	15.4	59.6	0.40	-71.1	3.76
	8/7/2007	15:20	400	35.80	0.04	6.74	1.068	17.1	62.7	0.20	-86	2.67
	7/26/2005	09:45	400	45.43	0.00	6.72	1.231	16.4	61.5	0.18	-77	2.90
	7/23/2003	10:00	400	42.40	0.00	6.73	1.113	15.2	59.4	0.53	-68	18.6
	7/11/2002	10:40	400	42.47	0.00	6.89	1.250	15.6	60.1	0.24	-290	15.2
	9/4/2001	--	--	--	--	6.58	1.435	15.3	59.5	0.13	-153	24.3

TABLE B-2
FIELD PARAMETER DATA FOR ROUNDS 15, 16, 17, 19, 23, AND 29
PRISTINE, INC. SITE

Monitoring Well ID	Date	Time	Pumping Rate (mL/min)	Depth to Water (ft)	Drawdown from Initial Water Level (ft)	pH	Conductivity (mS/cm)	Temperature		Dissolved Oxygen (DO) (mg/L)	Oxidation-Reduction Potential (ORP) (mV)	Turbidity (NTU)
	Purged/ Sampled							(°C)	(°F)			
MW88	7/17/2009	11:35	400	33.32	0.02	7.07	1.303	15.5	59.9	0.11	-233	8.57
	8/7/2007	14:35	400	35.84	0.00	6.63	1.680	17.0	62.6	0.20	-78	3.98
	7/25/2005	1515	400	45.63	0.00	6.88	1.101	17.4	63.3	0.20	-123	4.5
	7/23/2003	1210	400	42.40	0.00	6.74	1.144	15.7	60.2	0.69	-91	19.7
	7/23/2002	1055	400	43.60	0.00	6.88	1.229	16.6	61.8	0.21	-244	2.06
	9/13/2001	--	--	--	--	6.79	1.274	16.0	60.9	0.18	-233	24.2
	7/17/2009	10:30	400	32.76	--	7.04	1.690	15.3	59.5	0.13	-188	2.39
MW89	8/3/2007	10:15	400	35.71	0.02	7.08	1.336	16.7	62.0	0.50	-151	2.12
	7/25/2005	1400	400	45.51	0.00	6.79	1.417	17.4	63.3	0.24	-148	4.79
	7/23/2003	1410	400	42.18	0.00	6.85	1.301	15.4	59.7	0.87	-120	13.1
	7/23/2002	0940	400	43.42	0.00	6.92	1.319	16.7	62.1	0.28	-162	4.28
	9/13/2001	--	--	--	--	6.67	1.427	17.1	62.8	0.04	-261	7.9
	7/16/2009	16:10	200	20.33	0.44	9.18	1.012	15.9	60.5	0.05	-187	84.3
	7/31/2007	14:55	400	21.82	0.15	7.13	1.120	15.6	60.1	0.42	-178	46.8
MW90	7/19/2005	1500	400	32.53	0.02	6.98	1.261	15.7	60.3	0.18	-157	21.8
	7/17/2003	1035	400	29.18	0.00	6.99	1.121	15.0	59.0	0.78	-103	19.0
	7/23/2002	1425	400	29.75	0.00	6.99	1.056	16.0	60.8	0.64	-175	21.0
	9/18/2001	--	--	--	--	6.82	1.187	15.0	59.0	0.17	-232	22.1
	7/16/2009	15:00	400	19.71	0.04	7.41	1.209	15.6	60.1	0.11	-114	2.09
	8/2/2007	14:45	400	21.57	0.00	6.92	1.163	15.5	59.9	0.47	-94	2.43
	7/19/2005	1350	400	32.12	0.01	6.76	1.316	15.6	60.0	0.15	-115	1.26
MW91	7/17/2003	1145	400	28.70	0.00	6.88	1.142	15.5	60.0	0.32	-101	12.0
	7/23/2002	1550	400	29.29	0.00	6.96	1.087	16.8	62.3	0.38	-256	2.16
	9/18/2001	--	--	--	--	6.83	1.190	16.0	60.8	0.87	-196	20.1
	7/10/2009	10:25	400	18.90	0.00	7.36	1.246	11.2	52.1	0.09	-110	2.86
	8/8/2007	13:10	400	16.35	--	7.01	1.078	16.7	62.0	0.20	-218	4.97
	6/16/2005	1045	400	17.12	0.02	6.38	1.130	15.6	60.1	0.09	-172	3.87
	7/9/2003	0940	400	16.36	0.00	6.98	1.019	16.7	62.1	0.09	-120	5.32
MW92	7/11/2002	1330	400	16.24	0.00	7.06	1.162	18.2	64.8	0.14	-245	5.40
	9/5/2001	--	--	--	--	7.33	1.038	17.3	63.2	0.25	-203	20.3
	7/10/2009	11:30	400	18.50	--	7.45	1.296	11.2	52.1	0.13	-226	6.79
	8/8/2007	10:58	400	16.76	0.77	7.09	1.081	16.3	61.4	0.11	-239	37.3
	6/16/2005	0950	400	17.11	0.03	6.54	1.110	15.4	59.7	0.09	-194	4.99
	7/9/2003	0845	400	16.36	0.08	7.16	1.003	16.3	61.4	0.11	-139	2.16
	7/22/2002	1520	400	17.16	0.00	7.08	1.012	17.1	62.8	0.18	-179	4.36
MW93	9/11/2001	--	--	--	--	6.52	1.122	17.8	64.0	0.04	-255	115.6
	7/15/2009	12:25	200	33.22	--	7.81	0.779	17.5	63.6	0.18	-102	3.21
	7/27/2007	15:25	400	37.01	--	6.98	0.920	16.6	61.8	0.60	-94	3.32
	7/12/2005	1640	400	56.64	0.07	7.31	0.688	16.3	61.4	0.32	-179	9.7
	7/8/2003	1050	400	46.18	0.28	7.15	0.731	16.9	62.5	0.30	-119	4.04
	7/12/2002	1000	400	46.05	0.01	7.36	0.694	17.0	62.6	0.16	-170	10.0
	9/5/2001	--	--	--	--	7.08	0.725	15.9	60.6	1.52	-183	11.6

TABLE B-2
FIELD PARAMETER DATA FOR ROUNDS 15, 16, 17, 19, 23, AND 29
PRISTINE, INC. SITE

Monitoring Well ID	Date	Time	Pumping Rate (mL/min)	Depth to Water (ft)	Drawdown from Initial Water Level (ft)	pH	Conductivity (mS/cm)	Temperature		Dissolved Oxygen (DO) (mg/L)	Oxidation-Reduction Potential (ORP) (mV)	Turbidity (NTU)
	Purged Sampled							(°C)	(°F)			
MW95	7/15/2009	10:30	400	35.30	0.30	7.14	1.388	15.2	59.4	1.35	9	2.60
	8/1/2007	10:40	400	37.49	0.49	6.98	1.403	16.0	60.7	0.49	-144	2.33
	7/13/2005	1005	400	57.00	0.24	6.88	1.427	15.4	59.7	0.24	-121	4.91
	7/8/2003	1155	400	46.34	0.25	7.00	1.540	16.8	62.3	0.22	-117	3.22
	7/29/2002	1530	400	47.40	0.00	6.93	1.820	17.8	64.1	0.13	-259	5.92
	9/18/2001	--	--	--	--	--	6.76	2.037	15.7	60.2	0.14	-283
MW96	7/7/2009	15:30	400	29.25	0.01	7.37	1.630	17.8	64.0	0.09	-35	4.05
	7/18/2007	12:30	400	30.10	0.00	6.86	1.650	19.4	66.9	0.41	-42	1.97
	7/20/2005	1350	400	31.45	0.08	6.68	1.630	19.0	66.2	0.22	-110	3.01
	7/8/2003	1615	400	29.96	0.01	6.73	1.570	19.2	66.6	0.23	-72	2.81
	7/10/2002	1330	400	29.72	0.00	6.84	1.640	20.9	69.6	0.48	-240	10.0
	8/30/2001	--	--	--	--	--	6.99	1.566	19.1	66.4	0.26	-194
MW97	7/7/2009	14:23	400	29.53	--	7.44	1.550	19.67	67.41	0.18	-21	4.98
	7/18/2007	15:00	400	30.45	0.00	6.85	1.340	18.5	65.2	0.35	11	2.71
	7/20/2005	1145	400	31.70	0.00	6.80	1.324	19.6	67.3	0.22	-47	3.0
	7/7/2003	1515	400	30.29	0.00	6.94	1.053	19.6	67.2	0.18	-54	4.43
	7/10/2002	1520	350	29.70	0.00	6.91	1.130	21.0	69.7	0.20	-220	10.1
	8/31/2001	--	--	--	--	--	6.79	1.253	18.0	64.3	0.33	-224
MW98	7/21/2009	11:50	400	22.85	0.00	7.14	1.580	15.6	60.1	0.14	-17	2.97
	8/1/2007	14:35	400	23.47	0.00	6.93	1.412	16.8	62.3	0.37	48	3.98
	7/18/2005	1510	400	24.60	0.00	6.75	1.451	16.5	61.7	0.33	-69	4.31
	7/16/2003	1025	400	23.33	0.01	6.75	1.281	16.6	61.9	0.29	-47	6.41
	7/24/2002	1550	400	23.87	0.00	6.85	1.251	16.9	62.4	0.66	-239	7.41
	9/11/2001	--	--	--	--	--	6.38	1.481	16.4	61.5	0.16	-162
MW99	7/21/2009	10:50	350	23.09	0.04	7.43	0.857	16.0	60.7	0.09	69	12.1
	7/31/2007	10:45	400	23.70	0.02	7.07	1.283	15.9	60.7	0.35	-184	8.94
	7/18/2005	1630	400	24.71	0.00	6.99	1.343	15.9	60.5	0.13	-162	25.0
	7/16/2003	0915	400	23.42	0.03	6.89	1.214	15.7	60.3	0.22	-127	4.99
	7/18/2002	1042	400	23.72	0.02	7.07	1.457	16.6	61.8	0.19	-213	2.51
	9/6/2001	--	--	--	--	--	6.51	1.409	15.9	60.5	0.27	-222
MW100	7/7/2009	11:45	400	19.19	0.05	7.38	1.166	15.7	60.3	0.28	71	10.1
	7/19/2007	11:15	400	20.65	0.00	7.05	1.129	16.5	61.7	0.46	-31	3.34
	7/11/2005	1215	400	38.95	0.03	6.94	1.094	15.4	59.8	0.21	-250	5.14
	7/7/2003	1400	400	28.32	0.07	7.30	0.950	16.5	61.8	0.17	-118	16.4
	7/11/2002	1500	400	28.45	0.03	7.07	1.156	15.6	60.1	0.32	-297	<10
	8/30/2001	--	--	--	--	--	7.02	1.226	16.4	61.5	0.66	-185
MW101	7/9/2009	14:50	400	32.79	0.00	7.32	1.331	17.3	63.2	0.10	-280	3.48
	7/23/2007	15:40	400	33.47	0.00	7.10	1.348	17.4	63.3	0.52	-22	1.96
	7/21/2005	1400	400	36.17	0.00	6.78	1.460	18.5	65.3	0.23	-5	1.73
	7/17/2003	1500	400	34.45	0.05	6.72	1.325	18.0	64.4	0.47	-13	17.6
	7/18/2002	1655	400	34.60	0.00	6.77	1.487	19.6	67.2	0.11	-300	2.70
	9/7/2001	--	--	--	--	--	6.44	1.452	19.5	67.2	0.40	-136

TABLE B-2

**FIELD PARAMETER DATA FOR ROUNDS 15, 16, 17, 19, 23, AND 29
PRISTINE, INC. SITE**

Monitoring Well ID	Date		Pumping Rate (mL/min)	Depth to Water (ft)	Drawdown from Initial Water Level (ft)	pH	Conductivity (mS/cm)	Temperature		Dissolved Oxygen (DO) (mg/L)	Oxidation-Reduction Potential (ORP) (mV)	Turbidity (NTU)
	Purged/ Sampled	Time						(°C)	(°F)			
MW102	7/14/2009	11:15	200	26.56	1.88	8.51	1.073	17.9	64.3	0.14	-154	67.1
	7/27/2007	11:15	400	25.60	0.08	6.97	1.451	17.2	62.9	0.49	-13	8.32
	7/15/2005	1300	400	26.67	0.00	6.96	1.498	17.3	63.1	0.54	-130	15.2
	7/10/2003	1000	400	25.10	0.02	7.03	1.393	16.5	61.8	0.26	-23	3.96
	7/22/2002	1145	400	25.72	0.00	6.92	1.377	19.3	66.7	0.40	-120	23.7
	9/20/2001	--	--	--	--	6.32	1.510	16.4	61.5	0.33	-234	19.9
MW103	7/14/2009	12:35	400	24.99	0.00	7.24	1.305	16.5	61.7	0.37	-112	4.97
	7/24/2007	14:30	400	25.57	0.00	6.93	1.299	17.5	63.5	0.77	136	4.92
	7/15/2005	1125	400	26.62	0.07	6.78	1.351	16.7	62.0	0.69	-14	8.01
	7/10/2003	0900	400	25.08	0.02	6.94	1.179	16.6	61.8	0.71	54	4.8
	7/12/2002	1410	400	25.24	0.00	7.40	1.109	18.5	65.4	0.13	-274	10.2
	8/30/2001	--	--	--	--	6.89	1.131	17.3	63.1	0.54	-22	6.3
MW104	7/21/2009	14:05	400	--	--	7.76	1.432	15.4	59.7	0.12	-9	3.17
	8/6/2007	11:50	400	25.87	0.06	7.07	1.267	16.3	61.3	0.18	-236	38.0
	7/20/2005	1615	400	27.21	0.00	6.78	1.251	15.7	60.3	0.16	-144	8.09
	7/16/2003	1550	400	25.79	0.09	6.73	1.150	15.7	60.2	0.34	-89	4.20
	7/29/2002	1050	400	26.36	0.00	6.85	1.204	16.0	60.7	0.15	-145	3.58
	9/12/2001	--	--	--	--	6.42	1.210	16.2	61.2	0.29	-196	20.7
MW105	7/21/2009	15:45	200	26.36	3.00	7.59	1.230	16.0	60.8	0.09	-134	38.0
	7/31/2007	13:15	400	52.71	28.64	8.51	0.962	16.0	60.8	0.18	-262	4.32
	7/21/2005	1150	200	26.62	0.00	7.64	0.966	16.3	61.3	0.15	-242	9.7
	7/16/2003	1440	400	25.33	0.00	6.89	1.003	15.9	60.5	0.17	-140	404
	7/19/2002	1055	400	25.43	0.00	7.10	1.147	16.4	61.5	0.14	-270	589
	9/7/2001	--	--	--	--	6.74	1.180	16.3	61.4	0.14	-256	33.9
MW106	7/7/2009	13:28	400	14.87	0.12	7.66	1.249	15.7	60.3	0.08	6	3.13
	7/19/2007	10:00	400	15.75	0.00	7.10	1.201	15.4	59.7	0.66	-12	4.32

Well installed after 2005 event

APPENDIX C

FIELD SAMPLING PROCEDURES

FIELD PROCEDURE BEFORE USE QED MP20

- Turn on unit using O/I button; allow approximately 15 seconds for unit to begin reading.
- Check battery level by pressing ↵ button. Change if at or less than 3 volts.

Press ← key to highlight "Calib" @ bottom of LCD screen then ↵ button.

- Using ↓ key highlight "pH" on LCD screen then press ↵ button

pH is a two point calibration but always start with seven standard.

- Fill calibration cup 1/2 full with Ph 7.0 buffer and attach to probe with probes facing down
- Use ← key to start the calib symbol to flashing and press enter ↵
- Use ↓ key to start pH symbol to start flashing and press enter ↵
- Use ↑ or to ↓ raise or lower displayed value to match the standard then press enter.↵
- Fill calibration cup 1/2 full with pH or 10 buffer and attach to probe with probes facing down
- Repeat steps 3 and 4
- Press Esc to return to the real time data screen

Press ← key to highlight "Calib" @ bottom of LCD screen then press ↵ button.

- Using ↓ key highlight "SpC" on LCD screen then press ↵ button. This is for Specific Conductivity. Check conductivity standard near the expected range. Calibrate if greater than ±0.5 percent.

Conductivity is a one point calibration.

Fill calibration cup 1/2 full with know mS standard (dependant on know field conductance) and attach to probe with probes facing up.

- Use ← key to start the calib symbol to flashing and press enter ↵
- Use ↓ key to start SpC symbol to start flashing and press enter ↵
- Use ↑ or ↓ to raise or lower displayed value to match the standard then press enter ↵
- Press Esc to return to the real time data screen

FIELD PROCEDURE BEFORE USE QED MP20 (cont'd)

Check DO-Probe for air bubbles and change membrane and solution if needed.
(see manual for instructions)

- Fill the Calibration Cup with deionized or tap water (specific conductance less than 0.5 mS/cm) until the water is just level with the o-ring used to secure the membrane.
- Carefully remove any water droplets from the membrane with the corner of a tissue.
- Turn the black calibration cup cover upside down (concave upward) and lay it over the top of the Calibration Cup.
- Use ← key to start the calib symbol to flashing and press enter ↵.
- Use ↓ key to start "DO%" symbol to start flashing and press enter ↵.
- Determine the barometric pressure for entry as the calibration standard (default 760mmHg).
- DO% should stay @ 100.0 Sat. press enter ↵. Calibration of DO %Saturation also calibrates DO mg/L.

ORP Calibration Solution (CRA uses USE 3682 Zobell Solution).

- This calibration solution is packaged in dry form and must be reconstituted before use. To reconstitute the solution, add 125 mL of deionized or distilled water to the package of dry solution and shake to mix.
- ORP is temperature sensitive; pour solution into calibration cup and make note of temperature reading on LCD screen.
- Using ↓ key highlight "SpC" on LCD screen then press ↵ button.

Using the instruction sheet that should come with the ORP solution, verify that the mV reading of the solution is correct according to the temperature of the solution. If needed use ↑ or ↓ to raise or lower displayed value to match the standard then press enter ↵.

MAINTENANCE AND CALIBRATION PROCEDURE

HACH 2100P TURBIDITY METER (PORTABLE)

Shop Calibration Procedure:

- Shake StablCal Stabilized Formarin Standards vigorously for 2 to 3 minutes
- Let standards stabilize for 5 minutes
- Gently invert standard 5 to 7 times
- Fill clean cuvette with >0.1 NTU Standard and insert into meter
- Turn meter on and press CAL key and the S0 icon will be displayed
- If needed press → key to get numerical display (likely not needed)
- Press Read key and meter will count for 60 to 0
- The meter will then display the S1 and 20.0 NTU
- Fill clean cuvette with 20.0 NTU Standard and insert into meter
- If needed press → key to get numerical display (likely not needed)
- Press Read key and meter will count for 60 to 0
- The meter will then display the S2 and 100.0 NTU
- Repeat steps 9 through 11 for the 100 and 800 NTU standards
- When finished press the CAL key to accept the calibration and return to the measurement mode